Chapter 2

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Changes Between the Draft and Final SEIS

The following changes were made to Chapter 2 between the Draft and Final SEIS. Minor corrections, explanations, and edits are not included in this list.

- The description of the Planning Area now includes 5,400 acres managed by the Coquille tribe. These former BLM lands are managed per Congressional direction to follow the Northwest Forest Plan Standards and Guidelines.
- Compilation of 1999 field survey data was completed in February 2000 and the Species Review Process was rerun. Eighty species changed categories in all or parts of their range. Chapter 2 tables have been updated and a new table (2-11) has been added to show which species changed. Changes include 14 species removed and 12 species added in part or all of their range.
- New language requires known sites of species proposed for removal only because they are not late-successional forest associated to continue to be managed as known sites until their disposition is clarified under the special status species programs.
- The description of Management Recommendations now includes having them describe conditions when prescribed fire can occur in known sites.
- The Habitat-Disturbing Activities section now provides an exception to pre-disturbance surveys for certain natural ignition fires in Wilderness. It makes the same provision for backcountry, Wilderness Study Areas, roaded natural areas, and certain emergency situations, with REO review. There is also an exception, subject to REO review, for certain natural ignition fires in Late-Successional Reserves if the Late-Successional Reserve Assessment discusses potential presence and likely effects on Survey and Manage species.
- A section has been added discussing the relationship of the SEIS to recent litigation.
- The strategic surveys description has been expanded and responsibilities are clarified.
- For uncommon species, a provision for local determination of non-high priority sites has been added.
- The criteria for "adding a species" to Survey and Manage are clarified.
- As a consequence of listing the Canada lynx as a threatened species under the Endangered Species Act, the lynx standard and guideline was changed under all action alternatives to consider and implement conservation measures in the Lynx Conservation Assessment and Strategy as interim direction.
- The standard and guideline for bats was modified to clarify the bat species and types of structures to which it applies and to remove potentially harmful species identification survey requirements.
- The Alternatives Considered But Eliminated From Detailed Study section has been expanded.
- The Comparison of Alternatives section has been substantially reorganized.
- A discussion of potential mitigation has been added.
- A description of the application of this decision to sold sales and activity planning in progress has been added.
- The Species Persistence Objectives section has been rewritten to better describe the species distribution and stability objectives of this SEIS.
- A map of the physiographic provinces has been included because they are referenced in some of the species descriptions in Table 2-2 and elsewhere.
- The monitoring section has been expanded.
- Strategic survey start dates of 5 or 10 years for Categories 1E, 1C, 1D, 2C, 3A, 3B, and 3C have been removed because the scope and progress of strategic surveys now being conducted (see Background on Implementation. section early in Chapter 2) makes start dates moot.

Chapter 2
The Alternatives

This chapter includes a discussion of the issues, background, and other details, followed by a summary of the No-Action Alternative. Following an introduction to the theme and origin of the action alternatives, the standards and guidelines begin with Provisions Common to Alternatives 1, 2, and 3. This is followed by the standards and guidelines specific to each of the three action alternatives, which incorporates portions of Appendix E and F. Alternatives considered but eliminated from detailed study precede the comparison of the effects of the alternatives section. All Chapter 2 tables, except Tables 2-1, 2-3, 2-13, and 2-14 are located at the end of the chapter.

Introduction

This chapter presents four alternatives: the No-Action Alternative and three action alternatives (Alternatives 1, 2, and 3) designed to accomplish the Purpose and Need. Each action alternative proposes to amend the standards and guidelines for Survey and Manage, Protection Buffer, and certain other species-specific mitigation measures in the Northwest Forest Plan. The alternatives apply to lands administered by the Forest Service and the BLM within the Northwest Forest Plan area.

The Northwest Forest Plan, adopted in 1994, amended land and resource management plans on all units of the Forest Service and BLM in western Washington, western Oregon, and northwestern California. The Northwest Forest Plan provides substantial direction for managing habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. The Survey and Manage and other standards and guidelines proposed for amendment in the action alternatives were generally added as mitigation measures to the Northwest Forest Plan.

These mitigation measures add management for species for which there remained some concerns for persistence after the primary management strategies of the Northwest Forest Plan were designed. The action alternatives propose to amend those measures by combining and clarifying the measures to improve management efficiency and effectiveness, while continuing to meet the resource objectives envisioned in the Northwest Forest Plan. All three action alternatives retain many of the processes and procedures established, to date, for implementing current standards and guidelines. The alternatives do not propose to amend any aspects of the Northwest Forest Plan not specifically addressed in this SEIS.

The Issues

For this SEIS, four main issues were identified. The issues originated from comments received through public scoping for this SEIS and the Northwest Forest Plan, public comments received on the October 7, 1998, environmental assessment proposing a 1-year delay in surveys for some species, agency staff comments, as well as through experience implementing the currentmanagement direction. These issues are summarized below and serve to focus the comparison of the alternatives.

1. Will alternatives, in concert with other elements of the Northwest Forest Plan, meet species management objectives of the Northwest Forest Plan?

As described in Chapter 1 (Purpose and Need), the action alternatives seek to improve management efficiency over existing standards and guidelines by amending direction that is ambiguous, eliminating redundant and inconsistent direction, and establishing a process more responsive to new information being acquired about these species. The action alternatives include provisions for changing levels of management for various species and also propose removal of

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some species from Survey and Manage. The primary issue is whether or not the level of uncertainty from unknown information about these species can be reduced in an efficient and cost-effective manner while continuing to meet the species management objectives identified in the Northwest Forest Plan.

2. Will alternatives focus implementation budgets and personnel to those species, habitats, and proposed activities where management is needed to meet species objectives?

As described in Chapter 1 (Purpose and Need), the action alternatives seek to improve management efficiency. The action alternatives combine and clarify direction, consolidate similar direction, and more clearly provide for adjustments to management levels as new information is collected. The issue is whether or not funding and deployment of the scarce number of specialists and other personnel and resources are used efficiently to achieve the species management objectives.

3. Will the alternatives clarify confusing and conflicting standards and guidelines?

The standards and guidelines proposed for amendment in the action alternatives were derived from two separate sources: The Report of the Scientific Analysis Team (Thomas et al. 1993) and Appendix J2 of the Northwest Forest Plan. The various categories of standards and guidelines from the two sources need to be integrated and clarified to provide for clear, consistent management direction and implementation over time and across administrative units. The issue is whether or not management guidance is clear and the processes are well described to be consistently implementable, commensurate with the objectives for managing the species.

4. Will the level of effects on other resource outputs and activities be consistent with those intended when the standards and guidelines were adopted in the Northwest Forest Plan?

The Survey and Manage Standards and Guidelines were added to other elements of the Northwest Forest Plan as mitigation to improve conditions for species, but they do not guarantee, nor were they ever expected to achieve, absolute protection. These mitigation measures were not expected to change the resource outputs and activities described in the Northwest Forest Plan to any substantial degree. The Northwest Forest Plan Standards and Guidelines include a delayin the requirement to survey prior to ground-disturbing activities to allow time to develop Survey Protocols without overly impacting other management activities.

Currently, resource management activities (ranging from stream restoration to the use of prescribed fire, and from trail construction to timber harvest) are substantially limited by impractical survey requirements, protections for species determined to be much more common than previously anticipated, and management direction in excess of that needed to provide a reasonable assurance of persistence. All alternatives are expected to meet species persistence objectives at some reasonable level of risk and assurance. The issue is whether or not management direction can provide for a reasonable assurance of persistence without unnecessarily impairing the ability of the Agencies to meet other resource management needs and objectives.

Background on Origin of Standards and Guidelines

Protection Buffers

At the April 1993 Forest Conference in Portland, Oregon, President Clinton chartered the Forest Ecosystem Management Assessment Team (FEMAT) to write a scientifically based plan for "protecting the long-term health of our forests, our wildlife, and our waterways...in balance with ...a predictable and sustainable level of timber sales and nontimber resources..." (USDA, USDI 1994a, p. 1-4). The 10 options developed by FEMAT served as the basis for the 10 alternatives presented in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a). The FEMAT reviewed and used elements from several preceding planning efforts.

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One earlier effort was the 1990 *A Conservation Strategy for the Northern Spotted Owl* (Thomas et al. 1990), which was adopted by the Forest Service in 1992 and also served as the basis for the U.S. Fish and Wildlife Service Final Draft Northern Spotted Owl Recovery Plan (USDI unpub. 1992). Another effort dates back to 1992 when the Forest Service -- responding to May 28, 1992, direction from the U.S. District Court for the Western District of Washington -- initiated a proposal to supplement the 1990 Conservation Strategy with additional habitat protection and standards and guidelines. Key elements of the proposal to supplement the conservation strategy were in the March 1993 report of the Scientific Analysis Team, *Viability Assessment and Management Considerations for Species Associated with Late-Successional and Old-Growth Forest of the Pacific Northwest* (Thomas et al. 1993). As explained in Chapter 1, due to the concern that about 20 specific species were not adequately provided for by other elements of their recommendations, the Scientific Analysis Team wrote species-specific direction to apply wherever these species were found. The FEMAT labeled these species-specific directions "Protection Buffers" and brought them almost verbatim into the standards and guidelines for Late-Successional Reserves, Managed Late-Successional Areas, and Matrix (Thomas et al. 1993, pp. 291-299; USDA, USDI 1994a, pp. 2-26 and B-63 to B-71; and USDA, USDI 1994b, pp. C-19, C-21, C-26, C-28, C-45, and C-48).

As a result of the above, the various standards and guidelines for Protection Buffers comprise a mix of strategies. For example, application of the Protection Buffer Standards and Guidelines for most species results in adding unmapped Late-Successional Reserves or Managed Late-Successional Areas (USDA, USDI 1994b, pp. C-11 and C-26). For some species (white-headed woodpecker, black-backed woodpecker, pygmy nuthatch, and flammulated owl), application of the Protection Buffer Standards and Guidelines does not alter land allocation, but directs managing for snags in Matrix within the ranges of these species (USDA, USDI 1994b, pp. C-45 and C-46). For the Canada lynx, application of the standards and guidelines does not alter land allocation, but calls for developing site-specific management plans (USDA, USDI 1994b, pp. C-47 and C-48).

Survey and Manage and Other Mitigation Measures

The FEMAT assembled panels of experts to assess the likelihood of meeting various stability and distribution outcomes for 1,120 species for 7 of their 10 options, including Option 9, upon which the Northwest Forest Plan is based (USDA et al. 1993, pp. IV-40 through IV-49, IV-77, and IV-185). The panels used an outcome-based scale to assess the likelihood that habitat would support populations of these species. Although the majority of these species, including the northern spotted owl and all other threatened or endangered species, rated well, the panels could not confidently say that Option 9 would provide for stabilized, appropriately-distributed populations for 100 years across federal lands for some of the lichens, bryophytes, fungi, arthropods, mollusks, and other species. FEMAT (USDA et al. 1993, p. II-34) reported:

> *"[t]he lack of information on the species and their responses to habitat manipulations coupled with the large proportion that are inherently rare and/or locally endemic and likely sensitive to habitat disturbance gave the expert panels and our Team little confidence to predict many species/groups would find habitat well distributed within the range of the northern spotted owl for the next 100 years. These results are troubling."*

Option 9 was identified as the preferred alternative in the Northwest Forest Plan Draft SEIS published for public comment in July 1993. In response to concerns of the public and Agency personnel about certain species, the SEIS team formed a scientist-staffed "Additional Species Analysis Team" to reconsider these species and suggest mitigation measures (Appendix J2 in USDA, USDI 1994a). This team screened species to identify which needed additional analysis based on: (1) species ratings in the FEMAT report; (2) expected changes in Alternative 9 after the Northwest Forest Plan Draft SEIS; (3) cumulative effects on species; and, (4) additional species-specific criteria (Appendix J2 in USDA, USDI 1994a, pp. J2-2 to J2-3). Through this screening process, the team identified 486 species and 4 groups of arthropods for additional analysis.

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Following analysis, the team described 23 possible mitigation measures to reduce species concerns. None of these mitigation measures, including the combination eventually adopted, provided maximum benefits for all species. Although these mitigation measures reduced theimpacts of management actions, they are only a part of the overall strategy of the Northwest Forest Plan to meet species stability and distribution (persistence) objectives. Late-Successional, Riparian, and other reserves, as well as many standards and guidelines, work together to provide for habitat and species. Mitigation measures adopted from this analysis into the final version of the Northwest Forest Plan include:

- Protect Sites From Grazing (USDA, USDI 1994b, p. C-4).
- Manage Recreation Areas to Minimize Disturbance to Species (USDA, USDI 1994b, p. C-4).
- Survey and Manage (USDA, USDI 1994b, pp. C-4 through C-6 and Table C-3).
- Provide Additional Protection for Caves, Mines, and Abandoned Wooden Bridges and Buildings That Are Used as Roost Sites for Bats (USDA, USDI 1994b, pp. C-43 and C-44).

The above four measures, along with Protection Buffers, are the extent of standards and guidelines addressed in this SEIS.

Species were assigned to Survey and Manage to increase the likelihood of a stable, well-distributed population of the species across federally managed lands or to decrease the likelihood of their extirpation on federally managed lands in the Northwest Forest Plan area. Species assigned to Survey and Manage were placed in one or more of four "categories," numerically labeled 1-4, and also called "survey strategies" or "components." Assignment of species to one or more of these categories was generally based on available knowledge about the species, the level of management deemed necessary, and the feasibility of conducting surveys prior to habitat-disturbing activities.

These categories are described in more detail in the Description of the No-Action Alternative section later in this chapter. The Survey and Manage categories have dates for them to be started, completed, or applied to activities, and similar dates were adopted in the Northwest Forest Plan Record of Decision for the Protection Buffer species. Although the Protection Buffer and the Survey and Manage Standards and Guidelines have different histories and implementation approaches, they are alike in several ways. For example, 13 of the 23 Protection Buffer species are also included as Survey and Manage species (USDA, USDI 1994b, pp. C-49 to C-61). The resulting overlap creates two, sometimes conflicting, sets of direction for these species. This overlap and conflicting direction highlights the need to modify these standards and guidelines so that surveys, Management Recommendations, adaptive management, and otherSurvey and

The four Survey and Manage categories, per the Northwest Forest Plan Record of Decision (USDA, USDI 1994b, pp. C-4 through C-6 and pp. C-49 through C-61), are summarized below.

Four Categories of Survey and Manage From the Northwest Forest Plan			
Category 1 Manage Known Sites	**Category 2 Survey Prior to Ground-Disturbing Activities**	**Category 3 Extensive Surveys**	**Category 4 General Regional Surveys**
Applies to species where few sites are known.	Applies to species for which site-specific surveys were thought to be practical.	Specified primarily for species whose characteristics make site-specific surveys difficult.	Applies to species that are poorly known.

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Manage Standards and Guidelines can be appropriately applied to these species. The complete text of the Northwest Forest Plan Standards and Guidelines addressed in this SEIS is included in Appendix B (Standards and Guidelines for the No-Action Alternative).

The Northwest Forest Plan Final SEIS provided only a very crude guess for some species, and no guess at all for others, of the overall acreage involved in managing known sites for some of the Survey and Manage species (Appendix J2 in USDA, USDI 1994a, p. J2-40 and others). The Northwest Forest Plan Final SEIS estimated that the Survey and Manage mitigation measure would result in 2,500 acres managed for fungi; 24,550 acres managed for vascular plants; 7,500 acres managed for land snails and slugs (terrestrial mollusks); and 1,500 acres managed for the Larch Mountain salamander (Appendix J2 in USDA, USDI 1994a, pp. J2-16, J2-27, J2-41, and J2-46). The Final SEIS did not provide acreage estimates for other species and species groups, including lichens and bryophytes. The Final SEIS did not provide any specific analysis of the effects of the Protection Buffer provisions, except to the extent that Protection Buffer species were also considered under the Survey and Manage mitigation measure. Actual acres of known sites resulting from implementation of these standards and guidelines now exceeds 35,000 acres in just the Matrix land allocation, after essentially 2 years of implementing pre-disturbance survey requirements.

The Northwest Forest Plan Final SEIS disclosed that the effects discussion for maintaining a functional and interconnected, late-successional forest ecosystem was not revised from the Northwest Forest Plan Draft SEIS to reflect the Survey and Manage mitigation measure or other mitigation measures, because changes to the effects from these measures were expected to be relatively minor (USDA, USDI 1994a, p. 3&4-39). Similarly, except for a 6.38 million board foot reduction in Probable Sale Quantity (PSQ) for managing then known sites, the Northwest Forest Plan Final SEIS did not quantify socioeconomic effects of these mitigation measures, noting only that these measures ... added to the uncertainty of PSQ calculations. (USDA, USDI 1994a, p. 3&4-267.)

Background on Implementation of the Standards and Guidelines (1994-2000)

Since the Northwest Forest Plan Record of Decision was signed in 1994, the Agencies have made substantial progress in developing the organizational infrastructure and biological databases necessary to implement the Survey and Manage and Protection Buffer provisions. The Regional Interagency Executive Committee (RIEC) has chartered an Interagency Survey and Manage Workgroup to develop databases, Survey Protocols, and Management Recommendations. The status of the preparation of Survey Protocols and Management Recommendations is summarized in Table 2-1, Status of Management Recommendations and Survey Protocols as of 8/4/00 for the No-Action Alternative.

The Agencies have reviewed historical records of Survey and Manage species, developed a database of Survey and Manage known sites, and developed an Interagency SpeciesManagement System (ISMS) designed to store Survey and Manage data in a central database available to field staff (see Appendix D). Interagency technical experts have been designated to lead extensive and general regional surveys, as well as to provide training, species identification, and technical advice. Interagency taxa leads, or specialists, have been identified for each taxa group as well as for some species or species groups such as red tree vole and bats.

As of August 4, 2000, the workgroup had developed Management Recommendations for 263 species for field implementation and field review (of the 274 species in Category 1, manage all known sites), and Management Recommendations for an additional 7 species were in final editions (Table 2-1). For the 87 species in Category 2, pre-disturbance surveys required, Survey Protocols have been completed for the 75 species for which such surveys are “practical.” For the remaining 13 species for which such surveys are not considered practical, protocols have been

written to direct 1-year surveys to comply with the terms of a Settlement Agreement between Oregon Natural Resources Council and the Agencies. (The Settlement Agreement, originating from the August 1999 decision of the U.S. District Court for the Western District of Washington regarding implementation of the Survey and Manage Standards and Guidelines, expires with the adoption of an alternative in this SEIS. Under the action alternatives, pre-disturbance surveys for these species are not considered "practical" and they are moved to categories not requiring pre-disturbance surveys.) Management Recommendations and Survey Protocols are available on the internet at www.or.blm.gov/surveyandmanage/.

Training personnel in field identification and Survey Protocols for most species has been provided and the remainder are ongoing. Work done since signing of the Northwest Forest Plan Record of Decision has made it possible, to date, to survey for most Survey and Manage Category 2 and Protection Buffer species. As a result, more than 25,000 additional survey records have been reported and entered into the ISMS database and thousands of new sites of species in all four categories of Survey and Manage have been found. There continue to be some survey difficulties related to the species taxonomy, life history, range, distribution, habitat, and abundance. These difficulties are being addressed with extensive and general regional surveys.

As part of their overall implementation monitoring of projects, the Agencies have been monitoring compliance with Survey and Manage, Protection Buffer, and other standards and guidelines addressed in this SEIS. Monitoring has shown a high degree of compliance with these standards and guidelines (USDA, USDI 1997d and 1998k).

Table 2-1. Status of Management Recommendations and Survey Protocols as of 8/4/00 for the No-Action Alternative.

Taxonomic Group	Management Recommendations (MRs)					Survey Protocols (SPs)				
	Total Number of MRs needed (Cat. 1)	Status of MRs by Species in Category 1 incl. Protection Buffer Species				Total Number of SPs needed (Cat. 2)	Status of SPs by Species in Category 2 incl. Protection Buffer Species			
		Document Version*					Document Version*			
		0.0	1.4	1.9	2.0		0.0	1.9	2.0	2.1+
Vertebrates	7		6		1[1]	7			2	5
Bryophytes	24				24	11			11	
Fungi	152	1			151	8			8	
Lichens	30		1		29	3			3	
Mollusks	46				46	43			43	
Vascular Plants	15	3			12	15			15	
Total	**274**	**4**	**7**		**263**	**87**			**82**	**5**
	100%	4%			96%	100%			94%	6%

Document Version Definition:
0.0 - Not started.
1.4 - Being revised/edited by the Regional Ecosystem Office (REO) in preparation for review.
1.9 - In final editing.
2.0 - In REO or sent to field for use and peer review.
2.1+ - Being revised based on peer review.
[1] Great Gray Owl management direction is in the NFP ROD p. C-21

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Extensive and General Regional Surveys

Years 1996-1999 - With initial Survey and Manage efforts having put databases, Management Recommendations, and Survey Protocols in place for most species, and management of known sites and pre-disturbance surveys on schedule (as amended), extensive and general regional surveys (Components 3 and 4 respectively) were initiated in 1996. Two sub-teams, a regional Fungal Survey Team and a regional Lichen/Bryophyte Survey Team were formed to conduct these surveys because these taxa contained the overwhelming majority of species in these two components, about 285 species. The teams collected considerable new information on distribution and habitat requirements for several species and planned to spend several more years completing efforts on the entire list of species. Organization of general regional surveys for arthropods also started in 1996 for two of the four arthropod guilds, with the first field work in 1997. The arthropod surveys use a research-based experimental approach to examine the effects of disturbance (thinning and fire) on arthropod diversity and function. These disturbance effects were the primary concerns for arthropod persistence in the southern provinces of the Northwest Forest Plan.

Year 2000 - As work progressed on this SEIS in 1999, the six categories of Alternative 1 (the preferred alternative) and their defining criteria were proposed. Further, known information about each species was compiled and the Species Review Process (see Appendix F) was conducted to assign each species to a category or recommend them for removal from Survey and Manage. These efforts highlighted the importance of data from extensive and general regional surveys. The differences between the categories immediately helped to focus the specific questions that most needed to be answered for each species or species group. This focus resulted in a substantial increase in extensive and general regional surveys, now grouped as strategic surveys in fiscal year 2000.

Surveys in fiscal year 2000 built upon work from previous years and added new methods, depending upon the questions to be answered for each species and category. Each method is designed to meet scientific credibility, efficiency, and appropriate levels of statistical rigor. The Agencies allocated over $4 million to strategic surveys in fiscal year 2000. Efforts, which continue to be built upon in fiscal year 2001, included:

Random Grid Projects: Two ongoing random grid projects are designed to find additional occupied sites for many Survey and Manage species. For these projects, a statistically valid random sample of 1/2-acre survey plots is selected from among existing long-term forest inventory plots already uniformly distributed throughout federally managed lands in the Northwest Forest Plan area. The data will immediately contribute to answers about the distribution of species and, with analysis, it may also answer questions about the relationship of these species with particular habitat conditions. The first random grid project, in California, has conducted surveys for 11 species at 270 plots. This data can be combined with data from similar surveys conducted in 1999.

The second random grid project involves three areas, with 100 sample plots at each area (total of 300 plots). The project areas are: the Oregon Coast Range federal lands, the Gifford Pinchot National Forest, and federal lands in the Umpqua Basin. Sampling for all lichens, bryophytes and vascular plants on Survey and Manage is being conducted at each plot. Because of limitations on survey seasons, fungi and mollusk surveys are being conducted on 70 of these plots in each area (total of 210 plots).

Known Sites Surveys: Known Sites Surveys have been implemented in fiscal year 2000 and are similar to work done in previous years for Survey and Manage Component 3 and 4 lichens, bryophytes, and fungi. The work has three facets. First, already-documented locations of Survey and Manage species are revisited to confirm their existence at the sites. Then, an intensive vegetation/habitat data collection is performed. This data contributes to the design of habitat models and also provides information to develop better Survey Protocols and Management

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Recommendations. The final step is to search the surrounding area in an attempt to locate additional sites of the target species. As of September 2000, standardized data has been collected at 59 locations of 15 species of lichens and 9 locations of 1 species of bryophytes.

Red Tree Vole: Red tree vole work in fiscal year 2000 consists of five different projects. An analysis of spotted owl casting pellets will corroborate red tree vole range and distribution. A genetics lab is exploring the isolation of red tree vole genes for potential use in questions of population isolation and identification of priority sites. In the Umpqua Basin, randomly-selected forest inventory plots serve as the locations of habitat studies and red tree vole population occurrence. Selected "known sites" are being visited to learn about red tree vole persistence at a site and habitat associations. Finally, a project on the Klamath National Forest is investigating red tree vole occurrence at random forest inventory sites and is looking at habitat associations of the species. A comparable level of study will continue in fiscal year 2001.

Amphibians: A strategic survey project targeting Del Norte and Siskiyou Mountain salamanders was implemented to survey random forest inventory plots inside reserves. Thorough species searches and habitat characterizations were completed for 135 plots in fiscal year 2000 and surveys have begun at another 22 plots.

Habitat Modeling: Under the strategic survey efforts, a team has initiated the use of existing Potential Natural Vegetation mapping and Plant Association Guides to model habitat for fiveSurvey and Manage species. This work uses vegetation data to project where the species should occur, then surveys those locations to determine if the projection was correct. This modeling work builds from the known sites work described above.

Synthesizing data from related efforts: The strategic survey work is reviewing data collected in other efforts to learn from those projects. The best example is the numerous known sites of Survey and Manage lichen species incidentally documented during air quality studies.

Individual field units: Finally, individual field units have contracted for fungi and other surveys. The results of these surveys have been added to the ISMS database and incorporated into ongoing strategic survey planning. These surveys include fungi surveys in northern California and Salem District of BLM, and mollusk surveys at Coos Bay BLM, for example.

Changing Standards and Guidelines - Adaptive Management

The Northwest Forest Plan Record of Decision (USDA, USDI 1994b, pp. E-12 through E-15) specifies procedures for changing standards and guidelines in light of new information by stating:

> *"These standards and guidelines are based on current scientific knowledge. To be successful, it must have the flexibility to adapt and respond to new information. Under the concept of adaptive management, new information will be evaluated and a decision will be made whether to make adjustments or changes. These standards and guidelines incorporate the concept of adaptive management. This approach will enable resource managers to determine how well management actions meet their objectives and what steps are needed to modify activities to increase success or improve results.*
>
> *"The adaptive management process will be implemented to maximize the benefits and efficiency of these standards and guidelines. This may result in the refinement of standards and guidelines, land-use allocations, or amendments to Forest and District Plans. Adaptive management decisions may vary in scale from individual watersheds, specific forest types, physiographic provinces, or the entire planning area or region. Adaptive management modifications that require changes to Regional Guides, or Forest or District Plans will be adopted following applicable regulatory procedures. However, many adaptive management modifications may not require changes to Regional Guides, or Forest or District Plans."*

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Similarly, within the Survey and Manage portion of the Northwest Forest Plan Record of Decision (USDA, USDI 1994b, p. C-6), standards and guidelines specify:

> *"As experience is acquired with these requirements, agencies may propose changes to the Regional Ecosystem Office for analysis. These changes could includechanging the schedule, moving a species from one survey strategy to another, or dropping this mitigation requirement for any species whose status is determined to be more secure than originally projected."*

Consistent with the above provisions, the RIEC and the Agencies have made minor changes and corrections to Survey and Manage and Protection Buffer provisions. These changes and corrections are summarized below:

- Vascular Plants: The taxonomic entity *Arceuthobium tsugense* was changed to Arceuthobium tsugense ssp. mertensianae in Washington only and moved from Categories 1 and 2 to Category 4 (July 24, 1995).
- Mammals: The reference to Canada lynx was moved from Category 2 to Category 3 to better match the types of surveys possible for Canada lynx and described in the Northwest Forest Plan management direction (June 11, 1996).
- Protection Buffers: *Buxbaumia piperi* was removed from Protection Buffer species status to correct an error in the Northwest Forest Plan Record of Decision (July 26, 1996). The species had been included in a discussion of other mosses in the report of the Scientific Analysis Team (Thomas et al. 1993) but identified as not rare. It was inadvertently included in the Northwest Forest Plan Final SEIS and ROD.
- Arthropods: The wording was changed from Understory and forest gap herbivores to Understory and forest gap herbivores (south range) (September 10, 1996).
- Environmental Analysis to Change the Implementation Schedule for Survey and Manage and Protection Buffer Species: The survey schedule for 32 Survey and Manage Category 2 and Protection Buffer species was changed from fiscal year 1999 to fiscal year 2000 based on the technical infeasibility of surveys and the lack of substantially increased risk to the species from changing the schedule (February 1999) (USDA, USDI 1998j; USDA 1999; and USDI 1999a).
- Further Extend the Deadline for Surveying Seven Species of Fungi: The survey schedule for seven Survey and Manage Category 2 and Protection Buffer species was further extended from fiscal year 2000 to fiscal year 2001 based on the technical infeasibility of surveys and the lack of increased risk to the species from changing the schedule (February 2000) (USDA, USDI 2000a; USDA 2000; and USDI 2000).

Need for Supplemental Environmental Impact Statement

Aside from the changes and corrections described above and the implementation difficulties with some of the standards and guidelines as described in Chapter 1 of this SEIS, new information has been gathered about some species within the past 6 years. This new information indicates that some species are much more numerous than anticipated when the Northwest Forest Plan was prepared, some species need more management than originally prescribed, and some species requiring surveys prior to ground-disturbing activities cannot be reasonably detected or identified in the field or with simple laboratory or office examination.

Problems that make it appropriate to propose changes to the standards and guidelines for the Northwest Forest Plan include: (1) overlapping and unclear direction that has resulted in substantially higher than expected costs for surveys and projects; (2) lack of criteria for moving species between categories, or off Survey and Manage, which has made the Agencies reluctant to make all needed changes; (3) land allocations that result from Protection Buffers and add unnecessary and sometimes conflicting direction to the species-specific Protection Buffer

direction; and, (4) more restrictions on other management activities than needed to meet species management objectives. The proposed changes to the standards and guidelines of the Northwest Forest Plan addressing the above problems are the subject of this SEIS.

Response to August 1999 U.S. District Court Findings

In 1998, the Agencies identified a need to re-examine the Survey and Manage Standards and Guidelines with an SEIS. The Notice of Intent was published in the Federal Register on November 18, 1998, and work on this SEIS began. That same year, the Oregon Natural Resources Council and others brought suit in the U.S. District Court for the Western District of Washington over the application of the Survey and Manage Standards and Guidelines by the Agencies. On August 2, 1999, the Court found the Agencies' application of the Survey and Manage Standards and Guidelines to be deficient in two ways. First, the Court found that the Agencies' written interpretation that "implementation" of a project or activity referred to the date of the project decision or decision document was not consistent with language in the 1994 Northwest Forest Plan ROD. Second, the Court found that the Agencies' written direction exempting some habitat conditions from red tree vole surveys was not consistent with requirements in the Northwest Forest Plan ROD. An eventual settlement agreement required the Agencies to conduct pre-disturbance surveys for unawarded timber sales named in the settlement agreement or appealed by the plaintiffs. Current agency policy applies this decision to all other sales. The settlement agreement will be superseded by the Record of Decision made pursuant to this SEIS as of that decision's effective date.

The standards and guidelines for the action alternatives described in this SEIS respond to the two deficiencies identified by the Court as described below.

First, the Court ruled that the existing Northwest Forest Plan Standards and Guidelines language of "prior to ground-disturbing activities that will be implemented" could not reasonably be construed to refer to the date the activity was authorized by the decision or decision document as the Agencies had interpreted it, but instead applied to the date of actual disturbance. In light of the Court's ruling, the Agencies have determined to proceed with amending the standards and guidelines so that they will better reflect their intent on this issue, which is consistent with their earlier interpretation of the existing language. Notwithstanding the Court's ruling that the existing Northwest Forest Plan language could not support such an interpretation, in substance the Agencies believe their interpretation remains a reasonable application of the pre-disturbance survey requirement to the project planning, decision-making, and post-decision design and layout sequence. For the standards and guidelines in this SEIS, the merits and operational feasibility of these two interpretations, and others, were examined. The standards and guidelinesof the action alternatives in this SEIS remove the word "implemented" in this context because of varied agency uses. Also, for the reasons argued by the government in court and discussed in this chapter, Surveys Prior to Habitat-Disturbing Activities section, the standards and guidelines apply the requirement to conduct surveys prior to habitat-disturbing activities at the date of the NEPA decision or decision document (Forest Service and BLM, respectively). The effects to species described in Chapter 3&4 of this SEIS are prepared in conformance with this interpretation. In fact, since the effects to species section in the Draft SEIS was already in preparation on August 2, 1999, when the Court ruled, the effects sections were considering the November 1, 1996, direction to be in place. As described in the Background section of Chapter 3&4, the experts writing the species effects sections assumed that the habitat modifications expected to take place as the result of NEPA decisions previously signed, had, for analysis purposes, already taken place.

Second, the Court found that the Agencies' November 6, 1996, written direction modifying red tree vole surveys was not consistent with the language of Category 2 Survey and Manage Standards and Guidelines in the Northwest Forest Plan ROD that required, simply, surveys be conducted prior to ground-disturbing activities. The Agencies had relied upon analysis and information displayed in Appendix J2 of the 1994 Northwest Forest Plan SEIS that indicated the red tree vole had only just met the criteria for inclusion in Survey and Manage and that the

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primary concern for red tree vole was one of connectivity. In their November 6, 1996, direction memo, the Agencies identified that where connectivity issues did not exist, surveys were not necessary. The Court found no authority in the standards and guidelines for the Agencies to make such interpretations about where the required surveys should or should not be applied. The Agencies maintain that although the Northwest Forest Plan Standards and Guidelines may not have addressed this circumstance, the ability to make such interpretations is needed in order to make a reasonable and cost-efficient application of management direction to meet persistence objectives and that identification of habitats where species are, or are not, at risk is a logical extension of the requirement to survey. Therefore, the standards and guidelines for the action alternatives in this SEIS describe that Survey Protocols describing where and how to survey "...should also identify habitat conditions or locations, or criteria for identifying such conditions locally, where surveys are not needed for a reasonable assurance of persistence. Such habitat may include, but not be limited to, seral stages, stand age, stand complexity, or stand origin, where occupied sites, if present, are likely incidental, non-viable, or otherwise not important for meeting overall species persistence objectives" (see Survey Protocols later in this chapter).

Interagency Coordination and RIEC Review Requirement

The Northwest Forest Plan Standards and Guidelines specify that "decisions to change ...[NFP] standards and guidelines will be made only through the adoption, revision, or amendment of these documents following appropriate public participation, NEPA [National Environmental Policy Act] procedures, and coordination with the Regional Interagency Executive Committee" and "the amendments will be reviewed by the Regional Interagency Executive Committee to assure consistency with the objectives of these standards and guidelines" (USDA, USDI 1994b,p. E-18). The alternative proposed for selection for this SEIS will be submitted to the RIEC for review prior to finalizing the Record of Decision.

Endangered Species Consultation

Formal consultation under section 7 of the Endangered Species Act, as amended, was completed on Alternative 9 of the Northwest Forest Plan Final SEIS, as modified, for species and critical habitat listed under the Endangered Species Act at that time. The biological opinion for that consultation (Appendix G of the Northwest Forest Plan FSEIS) concluded that adoption of Alternative 9 would not jeopardize the continued existence, or result in the destruction or adverse modification of designated critical habitat, for any listed species. Consultation at the Northwest Forest Plan level has been completed for all but one species that, subsequent to completion of consultation on that Final SEIS, were listed or for which critical habitat was designated. These consultations reached the same conclusion. The remaining consultation, for bull trout, is underway. Other species listed under the Endangered Species Act since the Northwest Forest Plan was adopted are "no effect." The Survey and Manage Standards and Guidelines are part of the Northwest Forest Plan and are covered by these consultations.

The Endangered Species Act requires that consultation be reinitiated "...if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion" (50 CFR 402.16). Chapter 3&4 of this SEIS describes the extent to which the proposed changes to Survey and Manage Standards and Guidelines would affect listed and proposed species. Based on this analysis, the action alternatives of this SEIS do not cause effects to listed species or critical habitat substantively different than those considered in the biological opinion of the Northwest Forest Plan. Therefore, reinitiation of consultation is not required for those species in this SEIS.

The Canada lynx is a Protection Buffer species in the No-Action Alternative. Effective April 24, 2000, the species was listed as "threatened" under the Endangered Species Act throughout its range in the conterminous 48 states. Based on this recent listing, since release of the Draft SEIS, the species has its own species-specific standard and guideline in the action alternatives. The

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Biological Evaluation (included in Appendix G of this Final SEIS) concluded that adoption of the new Canada Lynx Standard and Guideline would result in a "may affect, but not likely to adversely affect" determination for this species. Therefore, prior to adopting the Record of Decision for this Final SEIS, the Agencies will conduct and complete informal consultation with the U.S. Fish and Wildlife Service.

Relationship of Standards and Guidelines with Other Elements of the Northwest Forest Plan

The Northwest Forest Plan is primarily a habitat-based set of standards and guidelines that amends, or was included in, National Forest and BLM District land and resource management plans to provide for Late-Successional Reserves, Managed Late-Successional Areas,Administratively Withdrawn Areas, and Riparian Reserves. The 19 percent of federally administered land in the Northwest Forest Plan area available for regularly scheduled timber harvest has additional standards and guidelines for Matrix and Adaptive Management Areas that specify retaining certain amounts of various habitat elements (including snags, down logs, and large trees). To these land allocations, the Forest Ecosystem Management Assessment Team (FEMAT) added about 20 species-specific standards and guidelines called Protection Buffers for species they thought needed additional or more broad-scale management.

The resultant FEMAT standards and guidelines were designed to provide for the habitat needs of more than 1,100 late-successional and old-growth forest related species. Viability rating panels judged the Northwest Forest Plan would provide for a high likelihood of viable populations for more than 700 of these identified species, including all those listed under the Endangered Species Act, but they judged the remaining 400 somewhat lower. The lower ratings were due to uncertainty, endemism, small population sizes, association with scarce habitats, and impacts of previous management.

Within this context, the Additional Species Analysis Team working with the SEIS Team provided mitigation measures designed to improve the likelihood that the Northwest Forest Plan would meet persistence objectives for these additional 400 species across their historical range on federal lands. The Survey and Manage Standards and Guidelines are one of these mitigation measures and are not the primary management the Northwest Forest Plan provides for these species. The primary management for late-successional and old-growth species is the system of large blocks of Late-Successional Reserves, the Riparian Reserve system, and other land allocations designed for such species. Over 80 percent of the federal forest in the Northwest Forest Plan area has been assigned to one or more of these reserve land allocations.

Species whose persistence is provided for "by other elements of the Northwest Forest Plan" are not, or should not be, included in the Survey and Manage Standards and Guidelines (USDA, USDI 1994a, pp. 3&4-117, 3&4-123, and 3&4-124). When new data indicates that the persistence of a current Survey and Manage species will likely be provided for "by other elements of the Northwest Forest Plan," the species does not meet the criteria for Survey and Manage and should be removed.

The Planning Area

The planning area for this SEIS is the federally administered land within the Northwest Forest Plan area, which corresponds to the range of the northern spotted owl as defined in 1994 (see Figure 1-1). These lands are located in western Washington, western Oregon, and northwestern California.

Although all federal lands within the Northwest Forest Plan area are included in the analysis and, for example, are considered to contribute habitat for the Survey and Manage and other species in

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this SEIS, the management direction in this SEIS applies only to those lands managed by the Forest Service, BLM, and 5,400 acres managed by the Coquille Tribe under the same standardsand guidelines as the adjacent BLM lands. No management direction is included here for other federal lands, state, private, or Native American trust lands (except as noted above). However, impacts from expected management activities on these other lands were considered as part of the effects analysis in this SEIS, as appropriate and in accordance with requirements of the NEPA.

Relationship of Alternatives to Existing Management Plans of the Agencies

If one of the action alternatives is selected, the direction established by the Record of Decision for this SEIS will supersede the pertinent management direction in the Northwest Forest Plan. It will also supersede the pertinent Northwest Forest Plan direction that amended, or was adopted, into all land and resource management plans for Forest Service and BLM units within the Northwest Forest Plan area. The following text provides more specific information for the two agencies.

Bureau of Land Management

Adoption of one of the action alternatives would, consistent with 43 CFR 1610.5-5, amend the resource management plans for the Salem, Eugene, Roseburg, Medford, and Coos Bay districts in Oregon; the Klamath Falls Resource Area of the Lakeview District, also in Oregon; and the Arcata, Redding, and Ukiah field offices in California. The King Range National Conservation Area Management Plan in the Ukiah Field Office would also be amended. Because the action alternatives would modify only a small portion of each of these resource management plans, plan revisions would not be necessary (43 CFR 1610.5-6).

When a decision is made to prepare an environmental impact statement, the amending process follows the same procedure required for preparation and approval of the plan (43 CFR 1610), but consideration is limited to that portion of the plan being considered for amendment. The BLM resource management planning process includes nine steps. The planning steps that pertain to this SEIS include issue identification, data collection, formulation of alternatives, estimation of effects, selection of the preferred alternative, and selection of the proposed plan amendment. If several plans are being amended simultaneously, a single environmental impact statement may be prepared to cover all amendments (43 CFR 1610.5-5).

Forest Service

Adoption of one of the action alternatives would result in amendment of the 1984 Regional Guide for Region 6, as amended in 1988 and 1994; the 1984 Regional Guide for Region 5, as amended in 1994; and the National Forest land and resource management plans for the Gifford Pinchot, Mt. Baker-Snoqualmie, Mt. Hood, Olympic, Rogue River, Siuslaw, Siskiyou, Six Rivers, Umpqua, and Willamette National Forests, as well as portions of the Deschutes, Okanogan, Wenatchee, Winema, Klamath, Lassen, Mendocino, Modoc, and Shasta-Trinity National Forests.

If an amendment to a Forest Plan results in “a significant change in the plan,” the National Forest Management Act (NFMA) and its implementing regulations require that the amendment process follow the procedures used in the initial development of the plan. If the proposed change in the plan is not significant, public notification and completion of the NEPA procedures are still required (16 USC 1604 (f)(4) and 36 CFR 219.10(f)). Significant change in the plan is determined by different criteria than those used in evaluating significance in the NEPA process. For the NFMA requirement, the Forest Service Manual (FSM 1922.51 and .52) provides specific direction.

FSM 1922.51 -- Changes to the Forest Plan that Are Not Significant. Changes to the forest plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for the long-*term land and resource management*.

The actions proposed in these alternatives would not alter the objectives and the multiple-use goals of the land and resource management plans as amended by the Northwest Forest Plan. In fact, the purpose of the action alternatives is to facilitate the achievement of those goals and objectives. The Preferred Alternative, for example, provides the level of species protection intended in the Northwest Forest Plan, while providing 94 percent of the declared PSQ level. In fact, a substantial purpose of the proposed action is to better achieve the multiple-use goals described in the land and resource management plans as amended in 1994.

2. *Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management*.

The adjustments proposed in the action alternatives clarify objectives and remove redundant direction. They do not remove the mitigation measure or otherwise change its key elements. The Preferred Alternative would not substantially change the level of species protections intended by the subject mitigation measure, but would reduce costs and improve the Forest Service' ability to conduct forest management activities at a level described in the land and resource management plans. The Preferred Alternative, if selected, would enable the land management agencies to better meet the long-term goals and objectives.

3. *Minor changes in standards and guidelines*.

The proposed change is sufficiently minor that the Forest Service sought advice from CEQ whether an EIS was necessary at all. Because species were proposed for removal from Survey and Manage and because the Northwest Forest Plan is highly sensitive, CEQ recommended an EIS. The changes, however, generally add details to actions already envisioned (but poorly described) in the land and resource management plans as amended by the Northwest Forest Plan. The proposal to remove approximately 15 percent of the species from Survey and Manage is consistent with existing language: "As experience is acquired with these requirements, agenciesmay propose changes to the Regional Ecosystem Office for analysis. These changes could include changing the schedule, moving a species from one survey strategy to another, or dropping this mitigation requirement for any species whose status is determined to be more secure than originally projected." The overall changes to Survey and Manage that would be affected by the proposed action are consistent with this language.

Further, the action alternatives would change a mitigation measure added during preparation of the Northwest Forest Plan Final SEIS. They would not significantly change any key elements of the underlying strategy or standards and guidelines.

4. *Opportunities for additional management practices that will contribute to achievement of the management prescription*.

The alternatives are specifically designed to more effectively achieve the intent of the mitigation measures while achieving the goals of the land and resource management plans. The Purpose statement includes "...while continuing to meet the underlying needs of the Northwest Forest Plan identified in the 1994 Northwest Forest Plan FSEIS..."

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FSM 1922.52 - Changes to the Forest Plan That Are Significant. The following examples are indicative of circumstances that may cause a significant change to a forest plan:

1. *Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (36 CFR 219.10(e)).*

The changes proposed in the action alternatives would help achieve (and not significantly alter) the relationship between the levels of multiple-use goods and services originally projected. The species intended to be protected by the Survey and Manage mitigation measure will continue to receive protection at levels intended in the land and resource management plans. Two alternatives, including the Preferred Alternative, would result in PSQ levels at 94 to 96 percent of currently declared levels, while the No-Action Alternative is projected to result in 63 percent of currently declared levels. Effects to other activities will be proportionately similar.

2. *Changes that may have an important effect on the entire forest plan or affect land and resources throughout a large portion of the planning area during the planning period.*

The comparison of the actions proposed in these alternatives with the criteria from the Forest Service Manual listed above shows that the alternatives will not result in a significant change to the land and resource management plans. The proposed action would make minor changes to the standards and guidelines some mitigation measures and would not alter the multiple-use goals and objectives for long-term land and resource management. The proposed adjustments in the management prescriptions result from new information and on-site analysis and are made, in part, to maintain (and not to change) the multiple-use goals and objectives set forth in the Northwest Forest Plan ROD.

The action alternatives propose to clarify and add efficiency to management direction already found in the Regional Guides and land and resource management plans of the National Forests identified at the beginning of this section. The effects of this direction were already analyzed in the 1994 Final SEIS for amendments to the Forest Plans and Regional Guides (the Northwest Forest Plan). The effects of the Survey and Manage mitigation measure are, arguably, higher than those identified in the 1994 Final SEIS, but: (1) the changes that would result from adoption of one of the action alternatives would improve, or at least not substantially detract from, effects already being experienced from the existing standards and guidelines; and, (2) the effects to PSQ were described as "adding uncertainty" and no absolute effect was quantified. The Preferred Alternative would result in a 6 percent departure from levels currently identified which is within the range of "adding uncertainty."

Because this is the first SEIS to display a combined PSQ for all the administrative units in the Northwest Forest Plan area since the Northwest Forest Plan Final SEIS, some commenters to the Draft SEIS attributed all of the difference between the 1994 PSQ of 958 MMBF (million board feet) (both BLM and Forest Service) and the Preferred Alternative's PSQ of 760 MMBF to Survey and Manage. They then contended that the effects to PSQ in this SEIS are significant. As noted in the Timber Harvest section in Chapter 3&4, changes between 1994 and 1998 that were predicted in the 1994 Final SEIS are responsible for the reduction to 811 MMBF. Further, the 811 MMBF must be viewed with the 1994-identified "added uncertainty" for Survey and Manage and not be treated as an absolute level.

Application of this Decision to Activity Planning in Progress

Pre-disturbance surveys and management of known sites have been conducted in compliance with the terms of the settlement agreement (see Response to August 1999 U.S. District Court Findings) during the past year. The Agencies have also been conducting pre-disturbance surveys on sales with signed NEPA decisions, even if those sales were not included in the settlement agreement. These pre-disturbance surveys are for all Component 2 species as described in the Northwest Forest Plan, as amended in the 1999 and 2000 Decision Notices. As a result, there are no timber

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sales with NEPA decisions signed prior to fiscal year 1999 proposed for sale that do not meet the fiscal year 1999 pre-disturbance survey requirements as modified by the 1999 and 2000 Decision Notices.

The settlement agreement is superseded when a decision on this Final SEIS becomes effective. Although the Record of Decision will make the final determination regarding application of the standards and guidelines to activities in progress, this Final SEIS anticipates the following:

Regarding Pre-disturbance Surveys:

For sales sold and enjoined (listed in Exhibit A of the settlement agreement, including approximately 3 sales listed as previously appealed):

- Complete compliance with the pre-disturbance survey requirement for all species requiring such surveys in both the No-Action and the Selected Alternative. For Alternative 1, this means completing pre-disturbance surveys for 59 species.
- Manage sites found during pre-disturbance surveys, including pre-disturbance surveys completed under the settlement agreement, for all species having manage known site direction under the selected alternative.

For sales sold and not enjoined:

- Proceed as sold and enjoined; no additional survey requirements.

For unsold sales or actions that have not had a contract issued with NEPA decisions signed in fiscal year 1999 that were in conformance with then-current standards and guidelines, including the 1999 EA and decision to delay surveys on 32 species:

- No additional requirements for pre-disturbance surveys.

For all other actions that have not had a contract issued with NEPA decisions prior to fiscal year 1999 or otherwise not meeting above:

- Bring into compliance with requirements of selected alternative. For Alternative 1, this means complete pre-disturbance surveys for 59 species.

Regarding management of known sites:

Apply manage known sites direction for species newly receiving this direction under the selected alternative, to unsold sales or actions that have not had a contract issued as described in the assumptions discussion in the Background section of Chapter 3&4.

Regarding management of sites for species removed from Survey and Manage:

Management of known sites may cease as of the effective date of the decision and previously managed sites are released as described in the standards and guidelines.

Authority to Amend or Modify this Decision

Although the Record of Decision for an alternative selected from this SEIS will be signed by the Secretaries of Agriculture and Interior, decisions concerning implementation or modification of the amendments to standards and guidelines rest with the line authorities of the individual Agencies and planning regulations and processes applicable to them, as described in the Northwest Forest Plan Record of Decision (USDA, USDI 1994b, p. 58).

Description of the No-Action Alternative

The No-Action Alternative would continue current management direction as described in the background sections in Chapter 1 and earlier in this chapter. The following direction, which is a portion of the Northwest Forest Plan Standards and Guidelines, is the direction proposed

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foramendment by the action alternatives described in this chapter. The complete text of the standards and guidelines to be amended appears in Appendix B of this SEIS (Standards and Guidelines for the No-Action Alternative). Additional details about the background of all standards and guidelines, except for the Protection Buffer species, are in Appendix J2 of the Northwest Forest Plan Final SEIS (USDA, USDI 1994a). Additional details about the Protection Buffer species can be found in the March 1993 SAT report, Viability Assessment and Management *Considerations for Species Associated with Late-Successional and Old-Growth Forest of the Pacific Northwest* (Thomas et al. 1993).

Survey and Manage

The Survey and Manage direction involves applying the management direction from one or more of four possible categories (numbered 1-4) to each of approximately 400 species or species groups. Each category has a phase-in period that varies by species. The Survey Protocols and Management Recommendations developed for these species include brief descriptions of the nature and objective of surveys and also require coordination through the Regional Ecosystem Office (REO). The four Survey and Manage categories are:

1. *Category 1 - Manage Known Sites* (252 species). This category applies to species where few sites are known. This standard and guideline applies to sites known as of the adoption of the Northwest Forest Plan, as well as newly found sites.

2. *Category 2 - Survey Prior to Ground-Disturbing Activities* (77 species). This category applies to species for which there was a high concern for persistence and for which surveys prior to ground-disturbing activities were thought practical. This standard and guideline provides for development of Survey Protocols and site management standards. It also provides for conducting surveys for 6 species prior to implementing activities in 1997 and surveys for the remaining 71 species prior to activities in 1999. (The 1999 date for 32 of these species was changed to the year 2000 by decision notices issued in March 1999 and the 2000 date was changed to the year 2001 for 7 of these species by decision notices issued in February 2000. See the section entitled "Changing Standards and Guidelines - Adaptive Management" earlier in this chapter).

3. *Category 3 - Extensive Surveys* (286 species). This category is specified primarily for species whose characteristics make site and time-specific surveys difficult. Surveys are conducted to find high-priority sites for species management and are to be done "...according to a schedule that is most efficient." This standard and guideline recognizes, and the Northwest Forest Plan Final SEIS considers, that: "[t]his strategy entails some risk because some species sites may be disturbed prior to completion of surveys." Surveys must be underway by 1996; no final date was specified.

4. *Category 4 - General Regional Surveys* (73 species). This category applies to species that are particularly poorly known or for which there was uncertainty regarding concern for persistence. The standards and guidelines are designed to acquire additional information and todetermine necessary levels of protection. The information gathered "...may be useful in refining these standards and guidelines to better provide for these species..." These surveys were to be initiated by fiscal year 1996 and completed within 10 years.

Table C-3 of the Northwest Forest Plan Final SEIS (in Appendix B of this SEIS) defines which of the above four categories of Survey and Manage (1-4) apply to which species or species groups. A species of high concern or with known sites might be assigned to Category 1 and also to Category 3 while a species of less concern might only be assigned to Category 3. Survey and Manage requires annual status reports be submitted to the REO and also provides for changing species to different categories or removing them from Survey and Manage, although the criteria for such changes are not indicated. No clear criteria are provided to indicate why a species belongs in a certain category and no specific provision exists for adding or removing a species, or for moving a species from one category to another, when there is new information.

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Protection Buffers

The Protection Buffer direction applies to 23 species, as discussed in Appendix B of this SEIS. Individual sites for 8 of the species become Late-Successional Reserves; sites for 10 species become Managed Late-Successional Areas; and sites for 5 species add management direction within the Matrix. One Managed Late-Successional Area species (Buxbaumia piperi) was removed from the Protection Buffer Standards and Guidelines in 1996 because its inclusion was an error (see the section entitled "Changing Standards and Guidelines - Adaptive Management" earlier in this chapter). Survey strategies and phase-in periods for the four Survey and Manage categories are specified for each Protection Buffer species. Thirteen of the 23 Protection Buffer species are also included in Survey and Manage, which provides partially overlapping management.

Manage Recreation Areas to Minimize Disturbance to Species

This direction does not name any specific species and does not apply specific additional direction. It was included to remind federal managers that the Survey and Manage Standards and Guidelines apply to disturbances in recreation sites the same as for timber sales and other ground-disturbing activities. This measure was deemed particularly important since a disproportionately high number of "known sites" were located around developed recreation areas.

Protect Sites From Grazing

This direction applies to 10 mollusk species and 1 vascular plant species deemed particularly sensitive to grazing. Most species included in this direction are also in the Survey and Manage Standards and Guidelines.

Provide Additional Protection for Bats

This standard and guideline applies to the Matrix and Adaptive Management Area land allocations to protect caves, mines, and abandoned wooden bridges and buildings that bats use as roost sites. Controversial portions of this standard and guideline are: the need to handle bats for species identification and winter surveys that disturb hibernation.

Adaptive Management

The standards and guidelines state that the Agencies may, as they acquire experience, submit a proposal to the REO to make changes to the Survey and Manage requirements. Such "...changes could include changing the schedule, moving a species from one survey strategy to another, or dropping this mitigation requirement for any species whose status is determined to be more secure than originally projected" (USDA, USDI 1994b, p. C-6). In the absence of a described process or criteria for such changes, however, the Agencies have hesitated to use this authority for other than the few minor corrections and changes described earlier in this chapter. There is no similar process for changing or removing species for Protection Buffers, Recreation Sites, Grazing, or Bats, other than the adaptive management discussion on pages E-12 through E-15 of the Northwest Forest Plan Record of Decision, which is applicable to all standards and guidelines.

Introduction to the Action Alternatives - Background on the Origin, Theme, and Objectives of Each Alternative

The needs the Agencies are responding to, and the actions proposed in response to those needs, are described in general terms in the Needs, Purpose, and Proposed Action sections in Chapter 1. Information about the origin, objectives, and design of the action alternatives, and a comparison

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between them, is described below. The standards and guidelines for each of the three action alternatives follow, starting with Provisions Common to Alternatives 1, 2, and 3. The No-Action Alternative is summarized earlier in this chapter and the standards and guidelines for the No-Action Alternative are provided in Appendix B of this SEIS.

The No-Action Alternative defines Survey and Manage categories based on the management action required. A species can be in one, two, or three categories and there is no information provided about why the species is in a certain category. For example, extensive surveys are needed for some species in order to identify high-priority sites for management, while extensive surveys for another species are simply needed to determine if it even occurs in the Northwest Forest Plan area. The current direction makes it difficult to design surveys that meet the specific management objectives for a species.

The No-Action Alternative also includes Protection Buffer and Protect From Grazing Standards and Guidelines. These measures provide similar, often overlapping, and sometimes conflicting direction for some of the same or related species. There is also specific management direction for Canada lynx, bats, and four species of cavity-dwelling birds. The action alternatives allpropose changes to these provisions to permit the Agencies to better incorporate new information now and in the future.

For Survey and Manage, there are basically only three potential management elements: manage known sites, survey prior to habitat-disturbing activities, and landscape-scale surveys. Landscape-scale surveys are known as extensive and regional surveys in the No-Action Alternative and as strategic surveys in the action alternatives. Surveys prior to habitat-disturbing activities are also referred to as pre-disturbance surveys and replace surveys prior to "ground-disturbing" activities in the No-Action Alternative in conformance with the previous Agency interpretation memo of November 1, 1996. The action alternatives continue to apply these three management elements, but apply them differently, or to different species, to meet the objectives of the alternative.

Alternative 1 (the Preferred Alternative)

Alternative 1 was designed by managers and taxa specialists to combine Protection Buffer and Protect from Grazing Standards and Guidelines into Survey and Manage, and to redefine Survey and Manage into six categories defined by the needs and characteristics of the species, while providing approximately the same level of species protection intended in the Northwest Forest Plan. This alternative responds to all four of the issues identified earlier in this chapter. This alternative is designed to meet Northwest Forest Plan species persistence objectives, identify priorities and needs, eliminate confusing and conflicting language, and reduce impacts to other forest management activities to the extent possible while continuing to meet species persistence objectives. Because new information is available about species, meeting Northwest Forest Plan species objectives does not necessarily mean keeping all elements of management direction the same or even keeping species on Survey and Manage.

The six categories in Alternative 1 are split between species that are "rare" versus those that are "uncommon." Rare species are known from a few to moderate number of sites. The known distribution, characteristics, habitat, and other factors indicate that all sites for rare species should be managed to provide a reasonable assurance of persistence, at least until more is known about the species. Uncommon species, on the other hand, are relatively more abundant, and although there is still a concern for persistence, management of all known sites is not needed in order to provide a reasonable assurance of persistence; direction calls for managing "high-priority" sites using criteria written into Management Recommendations. This is a new approach for the 24 species in two "uncommon" categories that is unique to Alternatives 1 and 3. Management Recommendations would be written to define the high-priority sites that must be managed in order to meet species persistence objectives.

Alternative 1 categories are also defined by whether characteristics of the species make finding the species likely during pre-disturbance, site-specific surveys. If a species is usually observable or if identifying characteristics are visible at predictable times, proposed activity areas can be surveyed with a relatively high confidence that the species will be detected if it exists in the area. If characteristics of the species makes locating them during pre-disturbance surveys less likely,the species are assigned to a different category placing more emphasis on landscape-scale surveys (strategic surveys). Examples include the seven species of fungi currently in Category 2 (No-Action Alternative) that require 5 years of surveys to make presence or absence findings with relatively high confidence. Even though some sites for these species have been found with pre-disturbance surveys, landscape-scale surveys should be an effective and more efficient method of defining habitat characteristics, locating potential habitat, and detecting species sites.

A further division of "status undetermined" occurs when so little is known about species that there is uncertainty as to whether they exist in the Northwest Forest Plan area, whether they are closely associated with late-successional forests, or whether other elements of the Northwest Forest Plan provide a reasonable assurance of persistence. Species with only a few known sites are considered "rare" and are assigned to Category 1E. For these species there is a persistence concern but the uncertainty issues are generally whether or not the species exist in the Northwest Forest Plan area or are closely associated with late-successional forests. Species with relatively more known sites, enough that inadvertent loss of some sites would not significantly increase risk, are considered "uncommon" and assigned to Category 1F. The issue in Category 1F is typically whether other elements of the Northwest Forest Plan provide a reasonable assurance of persistence and strategic surveys are specified to answer this question. Species are not expected to remain in these categories very long; strategic surveys or other information gathering is aimed at answering the uncertainty issue so species can be assigned to a different category or removed from Survey and Manage, as appropriate.

The interaction of these species characteristics creates the six Survey and Manage categories of Alternative 1, as shown in the following chart. Also shown are the management elements applicable to each category and the number of species assigned to each category at this time. The specific species or taxa group assigned to each category are shown in Table 2-2 at the end of this chapter. A species can only be assigned to one category. The assignments are the result of a detailed, three-step review of existing and new information by taxa specialists as described in Appendix F (Species Review Process) of this SEIS. The Species Review Process also found that 63 species, and 9 others for part of their range, no longer need to be included in Survey and

Alternative 1 - Redefine Categories Based on Species Characteristics			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 1A** - 57 species Manage All Known Sites Pre-Disturbance Surveys Strategic Surveys	**Category 1B** - 222 species Manage All Known Sites N/A Strategic Surveys	**Category 1E** - 22 species Manage All Known Sites N/A Strategic Surveys
Uncommon	**Category 1C** - 10 species Manage High-Priority Sites Pre-Disturbance Surveys Strategic Surveys	**Category 1D** - 14 species[1] Manage High-Priority Sites N/A Strategic Surveys	**Category 1F** - 21 species N/A N/A Strategic Surveys

[1] Includes three species with surveys practical but not necessary.

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Manage because they are not closely associated with late-successional forests, are not found within the Northwest Forest Plan area, or other elements of the Northwest Forest Plan provide a reasonable assurance of persistence. These species are proposed for removal in all three action alternatives.

Finally, three species were assigned to Category 1D, even though pre-disturbance surveys were practical, because there were enough sites known in the Matrix that it was not necessary to continue pre-disturbance surveys. Either Management Recommendations need to be written for these species to define high-priority sites for management or strategic surveys need to beconducted in reserves to confirm future removal from Survey and Manage. Changes in level of management from the No-Action Alternative, including species being removed from Survey and Manage,and the disposition of Protection Buffer and Protect from Grazing species, are shown on Tables 2-4 through 2-10 at the end of this chapter.

Compilation of 1999 field survey data was completed during the public comment period for the Draft SEIS. The Species Review Process Panels met to determine if new data suggested the need to change any species category assignments. The changes followed the process described in Appendix F, using the criteria described in the Adaptive Management section in each of the action alternatives, and are reflected in a revised Table 2-2 in this Final SEIS. Approximately 80 species were assigned to different categories, or removed or returned to Survey and Manage in all or part of their range, as a result of this process. Each of these changes is described in Table 2-11, Changes to Survey and Manage Species Category Between Draft and Final SEIS, at the end of this chapter. The 12 species returning to Survey and Manage were specifically examined to see if their return indicated any problems with application of the removal criteria. The results of that examination are summarized near the end of Appendix F.

The three elements of management direction in the No-Action Alternative (with extensive and regional surveys combined into one) are applied to each category, depending on the needs of the species in that category. The arrangement of species in the categories of Alternative 1 clarifies details and objectives for each of the three management elements. The specific requirements of each element may vary by category and are described in detail in the standards and guidelines for the action alternatives later in this chapter.

Alternative 1 provides for periodic review of information about each species. Alternative 1 also provides for moving a species from one category to another based on criteria for each category, or removing them from Survey and Manage altogether. There is also provision for adding late-successional associated species to Survey and Manage if they meet the criteria for concern for persistence.

The Purpose and Need for the proposed action is narrow and the information known about these species is, by definition, limited. Therefore, the two other action alternatives described in this SEIS also use the species classifications of Alternative 1, using the subdivisions of relative rarity, survey practicality, and known information.

Alternative 2

Like Alternative 1, Alternative 2 is designed to respond to all four of the issues identified earlier in this chapter. Compared to Alternative 1, however, Alternative 2 accepts some increased risk to species (Issue 1) in order to increase other resource outputs and activities (Issue 4). Alternative 2 is identical to Alternative 1 for the “rare” species, because so few sites exist for these species that the loss of undiscovered sites might preclude meeting species persistence objectives. However, Alternative 2 assumes that the 45 “uncommon” species are the most likely species to be removed from Survey and Manage Standards and Guidelines in the near future andseeks to expedite that process. More than 75 percent of the over 15,000 currently known sites for the 346 remaining Survey and Manage species are for these 45 “uncommon” species.

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Alternative 2 - Remove or Reassign Uncommon Species Within 5 Years			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 2A** - 57 species Manage All Known Sites Pre-Disturbance Surveys Strategic Surveys	**Category 2B** - 222 species Manage All Known Sites N/A Strategic Surveys	**Category 2C** - 22 species Manage All Known Sites N/A Strategic Surveys
Uncommon	**Category 2D** - 45 species Manage All Sites Known as of 9/30/99---------->\ No Pre-Disturbance Surveys ---------->\ Strategic Surveys Completed in 5 years ---------->		

In Alternative 2, the 45 "uncommon" species are grouped into one category, management of known sites is fixed at September 30, 1999, levels (affecting 24 species, including 4 species of vertebrates), and pre-disturbance surveys are dropped (affecting 10 species, including 3 species of vertebrates). Strategic surveys, however, must be completed within 5 years for the 45 species. At the end of 5 years, this category is dropped from Survey and Manage and information from the strategic surveys is used to decide whether the species are adequately provided for by other existing standards and guidelines, including the Northwest Forest Plan system of reserves, or whether the species should be assigned to the Agencies' special status species programs. The special status species programs of the Forest Service and BLM are designed to prevent listings under the Endangered Species Act or otherwise focus special management and may include surveys prior to habitat-disturbing activities and management of known sites, as needed for conservation of the species. The categories of Alternative 2 and the management elements applicable to each category are summarized in the following chart.

Since Category 2D is dropped after 5 years, no additional species will be added to it. Species proposed for addition to Survey and Manage in this alternative must meet the criteria for "rare."

The classification of species by relative rarity and survey practicality used in Alternative 2 is the same as Alternative 1, so the alternatives are directly comparable. The 45 uncommon species in Category 2D are the same as those in Categories 1C, 1D, and 1F in Alternative 1.

Alternative 3

Like Alternative 1, Alternative 3 is designed to respond to all four of the issues identified earlier in this chapter. Compared to Alternative 1, however, Alternative 3 accepts some decreases to other resource outputs and activities (Issue 4) in order to reduce risks to species (Issue 1). Alternative 3 builds on the categories of Alternative 1, but adds additional management for species. One added measure is that occupied sites for "rare" species are ensured microclimate protection by specifying a 250-meter buffer. Also, for species for which pre-disturbance surveys are not considered "practical," Alternative 3 specifies another type of pre-disturbance survey called an "equivalent-effort" survey. Equivalent-effort surveys are conducted to the same level of effort as practical surveys, but characteristics of the species and the time requirements to complete the surveys reduce their likelihood of being detected. Also in this alternative, manage known site direction is extended to the "status undetermined, uncommon species" (Category 3C). These management elements, and the categories to which they apply, are summarized below. Finally, as in Alternative 1, late-successional forest associated species may be added to Survey and Manage if they meet the criteria for concern for persistence.

Alternative 3 - Adds Equivalent-Effort Surveys and 250-Meter Rare Site Buffers			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 3A** - 301 species Manage All Known Sites with 250-Meter Buffers ---------->* Pre-Disturbance Surveys Equivalent-Effort Surveys ---------->* Strategic Surveys ---------->*		
Uncommon	**Category 3B** - 24 species[1] Manage High-Priority Sites ---------->* Pre-Disturbance Surveys Equivalent-Effort Surveys >* Strategic Surveys ---------->*		**Category 3C** - 21 species 1. Manage All Known Sites 2. N/A 3. Strategic Surveys

[1] Includes three species with surveys not necessary.

The number of species to which the three elements of management direction apply varies by alternative, as shown in Table 2-3, Number of Species in Each Element of Management Direction by Alternative. These variations reflect the different emphases of the alternatives and account for most differences between the alternatives relative to species management and effects to other habitat-disturbing forest management activities.

Summary of Similarities Between the No-Action and the Action Alternatives

Because the purpose of the proposed action centers around clarifying existing direction rather than re-analyzing the entire Northwest Forest Plan, there are many similarities between the No-

Table 2-3. Number of Species in Each Element of Management Direction by Alternative.

Management Direction	Alternative			
	No-Action	**Alternative 1**	**Alternative 2**	**Alternative 3**
Manage Known Sites	272	325	301[1]	346
Pre-Disturbance Surveys	87	67	57	322[2]
Strategic Surveys	338[3]	346	346[4]	346
Remove From Survey and Manage	--	63 (and 9 in part of their range)	63 (and 9 in part of their range)	63 (and 9 in part of their range)

[1]Locks known sites at 9/30/99 level for additional 45 species.
[2]Includes equivalent-effort surveys, which are similar in conduct. Excludes 3 species with survey not necessary.
[3]Extensive and regional surveys combined in No-Action Alternative.
[4]Includes 45 species for which surveys must be completed within 5 years.

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Action and action alternatives. Compared to the No-Action Alternative, the action alternatives would continue to:

- Apply the Survey and Manage mitigation measure for endemic and little-known
! species for which the reserves and other elements of the Northwest Forest Plan do not appear to provide a reasonable assurance of persistence.
- Apply the Survey and Manage elements of manage known sites, pre-disturbance surveys, and landscape-scale surveys.
- Specify changing species between categories or removing them from Survey and Manage based on new information and review by the Regional Interagency Executive Committee.
- Apply the objectives and principle management direction for Protection Buffer species.

Summary of Similarities in the Three Action Alternatives

As described in the Introduction to the Action Alternatives above, the three action alternatives presented in this chapter (Alternatives 1, 2, and 3) are alike in several ways. These alternatives would:

- Redefine Survey and Manage categories based on relative rarity, survey practicality, and level of knowledge about the species. The new categories clarify species objectives and application of management direction.
- Combine standards and guidelines for Survey and Manage and Protect from • Grazing, as well as most Protection Buffer species, into a single, more comprehensive, Survey and Manage section.
- Retain the following Survey and Manage elements from the Northwest Forest Plan: Manage Known Sites, Survey Prior to Habitat-Disturbing Activities, and Landscape-Scale Surveys.
- Improve management efficiency while continuing to meet the underlying needs of the Northwest Forest Plan.
- Clarify objectives of the Survey and Manage categories.
- Include an adaptive management section explaining how new information is evaluated, how to move species from one category to another, and how to remove species from Survey and Manage.
- Include a process for adding species to Survey and Manage if they are known to be closely associated with late-successional forests, are present within the Northwest Forest Plan area or nearby with potential habitat within the area, and meet the criteria for concern for persistence.
- Move the remaining standards and guidelines for Protection Buffers and Additional Protection for Bats to "Standards and Guidelines Common to All Land Allocations." The standards and guidelines for these species are amended to provide overall objectives, and the specific implementation details in the Northwest Forest Plan become interim Management Recommendations, subject to change through the process described for Survey and Manage species.

Differences in the Three Action Alternatives

The three action alternatives vary as shown below. These differences affect implementation efficiency, the manner and relative level in which individual species are managed, and the effectiveness of the alternatives in meeting the Purpose and Need. Since the purpose and need for this SEIS is relatively narrow, and Alternatives 2 and 3 were developed from the basicstructure of Alternative 1, the differences between the action alternatives are relatively few. The differences between the alternatives are described below.

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Compared to Alternative 1, Alternative 2 would:

- Combine the three "uncommon" categories and
  – Manage sites known as of September 30, 1999. This reduces site management for 24 species, but adds management of currently known sites for 21 species.
  – Drop the requirement for pre-disturbance surveys for 10 species.
  – Complete strategic surveys within 5 years and either remove species from any special management or assign them to the Agencies' special status species programs.
  – Change the criteria for adding species in the future to the criteria for "rare" species.

Compared to Alternative 1, Alternative 3 would:

- Combine "rare" species in one category, and combine two of the "uncommon" species into one category, and apply the three elements of management direction to all species in both categories.
- Apply a 250-meter buffer to known sites of "rare" species.
- Require "equivalent-effort" surveys for species where pre-disturbance surveys are not considered "practical." Characteristics of these species reduce the likelihood of finding all sites.
- Apply Manage All Known Sites direction to "uncommon" species with status undetermined.
- Remove due dates for completion of certain Strategic Surveys because the requirement for equivalent-effort surveys reduces their urgency.

Identification of the Preferred Alternative

Alternative 1 is identified as the Preferred Alternative. Alternative 1 was designed to better identify the management needed, clarify language, eliminate inconsistent and redundant direction, and establish a process for responding to new information, while providing the same level of protection intended in the Northwest Forest Plan. For the over 400 species addressed by the standards and guidelines, Alternative 1 proposes to remove 72 species from Survey and Manage in all or parts of their ranges. For the 346 species remaining on Survey and Manage, Alternative 1 would add known site management for 86 species, remove pre-disturbance surveys for 15 species, and add strategic surveys for 69 species.

Alternative 1 meets species persistence objectives to the extent practicable. Many species are so naturally rare that no alternative can ensure persistence but remain on Survey and Manage because it provides additional protection. One hundred fifteen species meet persistence objectives as a result of the Survey and Manage mitigation measure. An additional 10 mollusk species do not meet persistence objectives but Alternative 1 provides an appropriate, practicable level of management, and no additional mitigation is proposed.

Alternative 1 maintains the stability of local and regional economies by providing 94 percent of the currently declared PSQ level and 49 percent more PSQ than could be achieved under the No-Action Alternative. Other forest management activities, including restoration, are similarly affected. Alternative 1 is estimated to cost 233 percent more to implement than the Agencies spent on Survey and Manage in fiscal year 1999, but 76 percent less than complete implementation (including 5-year fungi surveys) of the No-Action Alternative.

Provisions Common to Alternatives 1, 2, and 3

Existing Standards and Guidelines Are Amended: The standards and guidelines in the Northwest Forest Plan Record of Decision (USDA, USDI 1994b) for Survey and Manage, most Protection Buffers, Protect Sites From Grazing, and Manage Recreation Areas to Minimize Disturbance to Species (displayed in Appendix B of this SEIS) would be removed in their entirety and replaced as

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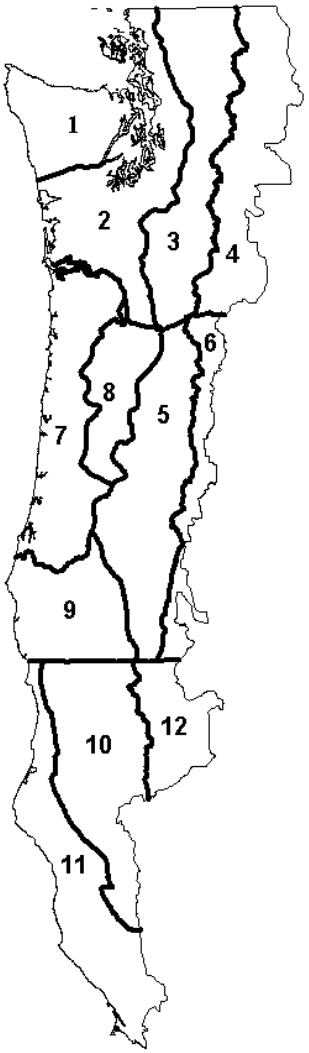
described below for Alternatives 1, 2, or 3. The standards and guidelines for Provide Additional Protection for Caves, Mines, and Abandoned Wooden Bridges and Buildings That Are Used as Roost Sites for Bats and for some Protection Buffers (also displayed in Appendix B) would be amended and made applicable to all land allocations as described in the alternative descriptions.

Other elements of the Northwest Forest Plan not specifically addressed, and implementation memos and other policy interpretations not affected by changes in the standards and guidelines of the selected alternative, are not changed by this action. Exceptions to certain standards and guidelines for research or the Adaptive Management Process described in Chapter E of the Northwest Forest Plan Standards and Guidelines, for examples, continue to apply to Survey and Manage as under the No-Action Alternative (USDA, USDI 1994b, pp. C-4 and E-12 through 15).

Physiographic Provinces: The 1994 Northwest Forest Plan Standards and Guidelines includes two different province maps; physiographic provinces and planning provinces. The map of the 12 physiographic provinces appears on page A-3 of the Northwest Forest Plan Standards and Guidelines and is repeated here for reference (see Figure 2-1). The physiographic provinces allow differentiation between areas of common biological and physical processes. Unless otherwise identified, references to "provinces" in these standards and guidelines are to physiographic provinces. The 12 physiographic provinces are:



1. WA Olympic Peninsula
2. WA Western Lowlands
3. WA Western Cascades
4. WA Eastern Cascades
5. OR Western Cascades
6. OR Eastern Cascades
7. OR Coast Range
8. OR Willamette Valley
9. OR Klamath
10. CA Klamath
11. CA Coast Range
12. CA Cascades

Species Removed from Survey and Manage and Related Standards and Guidelines: Species shown as "Off" in all or part of their ranges under Alternatives 1, 2, and 3 on Table 2-2 (and alsolisted separately on Tables 2-4 and 2-5) would be removed from Survey and Manage and/or Protection Buffer management, and current "known sites" of these species would be released for other resource activities except as noted below.

Reasons for removing species include: (1) site numbers, site locations, and other factors indicate the reserves and other elements of the Northwest Forest Plan provide a reasonable assurance of persistence; (2) the species was determined not to be closely associated with late-successional or old-growth forests; or, (3) the species is not found within the Northwest Forest Plan area (see Tables 2-4 and 2-5 for species-specific discussions). Species that would be removed only because they are not closely associated with late-successional or old-growth forests are either already on, or are currently being considered for, the Agencies' special status species programs. Known sites for these species will be managed until their disposition is clarified under the special status species programs or a decision is documented not to include them. Although the BLM Special Status Species program has broad latitude to

Figure 2-1. Physiographic Provinces

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include any species of concern, one or more of the above species may not qualify for the Forest Service Sensitive Species program because the criteria for inclusion are slightly different than for Survey and Manage. The Forest Service Sensitive Species program does not typically include species for which status is uncertain, but does include species for which there is a documented concern for viability within one or more administrative units within the species' historic range (FSM 2670.22, WO Amendment 2600-95-7) (USDI 1990 Instruction Memorandum No. OR-91-57).

Arthropods: In the No-Action Alternative, arthropods are included only as four functional groups (guilds). The action alternatives continue this grouping. For arthropods, references in these alternatives to species or taxa apply only to these four functional groups and no individual species will be added to Survey and Manage. The Agencies' special status species programs are available should a species be of concern and meet the criteria for those programs. This is consistent with how arthropods were addressed by FEMAT and the Northwest Forest Plan.

Annual Status Reports

An interagency, Northwest Forest Plan area-wide annual status report (the annual report), will be prepared to display progress and identify products resulting from implementation of these standards and guidelines. The report will include, at a minimum, results of adaptive management changes, status of Management Recommendations and Survey Protocols, a summary of the Strategic Survey Plan (including the status of strategic surveys), and important new management direction. This report is the primary tool for the public to find out about annual changes to species assignments and resultant application of surveys to Agency activities. The Agencies will establish a mailing list for all persons wishing to receive all or a part of this report. Until and unless the Agencies identify and publish an alternative source, such requestsshould be addressed to the Interagency Survey and Manage Program Manager, c/o Regional Ecosystem Office, P.O. Box 3623, Portland, OR 97208-3623.

Monitoring

Monitoring for the Survey and Manage Standards and Guidelines will continue to tier from the monitoring direction included in the Northwest Forest Plan, be further defined and adapted to the new categories described for the action alternatives, and build upon new information identified in this SEIS and compiled in future years during the annual Species Review Process. Sources of new information that will contribute to monitoring, and help identify the specific monitoring questions, include pre-disturbance and strategic surveys, as well as publications, research results, public, academia, and other sources. The primary objective of monitoring relative to Survey and Manage species is to determine if species persistence objectives are being met.

The Northwest Forest Plan monitoring section identifies three types of monitoring (USDA, USDI, 1994b, pp. E-4 through E-10):

1. Implementation monitoring for the Northwest Forest Plan began in 1996 and is conducted annually. Completed and active projects or activities have been randomly selected, stratified to represent a cross section of all types and sizes of habitat-disturbing activities representing all provinces in the Northwest Forest Plan area. Compliance with standards and guidelines is examined by province teams representing various agencies and the public. The implementation monitoring reports for fiscal years 1996, 1997, and 1998 include results for timber sales and the Survey and Manage Standards and Guidelines. The results of this monitoring have consistently indicated greater than 95 percent compliance rate for Northwest Forest Plan Standards and Guidelines. Selection of one of the action alternatives will necessitate revising Northwest Forest Plan implementation monitoring to fully cover all aspects of these standards and guidelines.

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2. Effectiveness monitoring for Survey and Manage will be addressed in the Biological Diversity effectiveness monitoring are currently being designed (as described in the Northwest Forest Plan ROD, p. E-8), will focus on species and habitat relationships defined during strategic and pre-disturbance surveys, and use these relationships to identify special habitats for potential monitoring. Where Survey and Manage species cannot be linked to characteristic habitat, effectiveness monitoring approaches will need to be developed to address species or groups of species. Strategic survey visits to currently known sites to characterize habitats and broad-scale surveys for Survey and Manage species provide baseline and background information upon which to build additional monitoring to answer specific species questions.

3. The key element of the validation monitoring described in the Northwest Forest Plan that relates to Survey and Manage species is: Are the assumptions and relationships upon which the Northwest Forest Plan as amended with the selected alternative from this SEIS valid? These underlying assumptions include the three basic criteria for including a species under Survey and Manage: (1) its range is within the Northwest Forest Plan area; (2) it is closely associated with late-successional forests; and, (3) other elements of the Northwest Forest Plan do not appear toprovide for a reasonable assurance of persistence. In some cases it may be necessary to validate the assumptions regarding habitat requirements and management actions to maintain and enhance suitable habitat.

Survey and Manage Basic Criteria

Three Basic Criteria for Survey and Manage

1. The species must occur within the Northwest Forest Plan area, or occur close to the NFP area and have potentially suitable habitat within the NFP area.
2. The species must be closely associated with late-successional or old-growth forest (see Appendix E).
3. The reserve system and other Standards and Guidelines of the Northwest Forest Plan do not appear to provide for a reasonable assurance of species persistence.

The action alternatives specify that the Survey and Manage three basic criteria (see box) must be met for a species to be included in the Survey and Manage Standards and Guidelines. Only published taxonomic entities meeting the three basic criteria can be added to Survey and Manage. Species no longer meeting these criteria will be removed from Survey and Manage. The process for adding or removing a species is described in the Adaptive Management section for each alternative. The following section describes "persistence" and the criteria used to determine when there is concern for persistence.

Species Persistence Objectives

For purposes of this SEIS, species persistence objectives have been adapted from the Northwest Forest Plan ROD (USDA, USDI 1994b, p. 44) and form an integral component of the purpose and need of the Proposed Action, as noted earlier. In general, these objectives may be described as providing for roughly the same likelihood of persistence as that which was provided by the Northwest Forest Plan as originally adopted in the 1994 ROD.

More particularly, for vertebrate species, the Northwest Forest Plan specified use of the Forest Service viability provision in the National Forest System Land and Resource Management Planning Regulation for the National Forest Management Act of 1976, which reads in part as follows:

> *"Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of*

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reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area." (36 CFR 219.19.)

The 1994 ROD identified compliance with this Forest Service regulation as a goal across both Forest Service and BLM administered lands as a means of serving the important policy goal of protecting the long-term health and sustainability of all of the federal forests within the range of the northern spotted owl and the species that inhabit them (USDA, USDI 1994b, p. 44). The Northwest Forest Plan ROD takes note of the fact that there is no specific or precise standard or technique for satisfying the viability provision (USDA, USDI 1994b, p. 44), nor is there any requirement to conduct a viability analysis for each species. Instead, common sense and agency expertise must be used in making determinations of compliance with the viability provision (Seattle Audubon Society v. Moseley (W.D. Wash. 1992)). For non-vertebrate species, the Northwest Forest Plan satisfied "a similar standard (to the one reflected in the NFMA viability provision for vertebrate species)...to the extent practicable" (USDA, USDI, 1994b, p. 44). These overall objectives are summarized simply as the "persistence objectives" within this SEIS.

As part of the background to the Northwest Forest Plan, the FEMAT report provided assessment of the effects of various management options on species associated with late-successional and old-growth forests. This assessment was based on expert panel evaluation of the likelihood that each option presented in the FEMAT report would provide sufficient habitat on federally managed lands for various distribution patterns of species populations for 100 years. This assessment was documented in the Northwest Forest Plan Draft SEIS. Between the Draft SEIS and the Final SEIS for the Northwest Forest Plan, additional analysis was done for those species whose original outcomes were potentially inconsistent with the stated species persistence objectives. This additional analysis identified Survey and Manage as one mitigation measure that could improve the likelihood of meeting species persistence objectives, particularly for rare species and those about which little is known. Survey and Manage, along with other mitigation measures, was adopted in the ROD. These mitigation measures, along with the assessment of outcomes by panels of experts, were among the factors the signers of the ROD used to determine that species objectives, including those directed by the National Forest Management Act regulations, were met (see USDA, USDI 1994b, pp. 43 to 47). This determination was upheld by the courts.

For this SEIS, expert effects writers again used outcome statements as part of their assessment process. These outcome statements were modified from those used by FEMAT to better fit typical Survey and Manage species (rare or endemic species or species about which little is known).

Objectives for maintaining species persistence for this amendment are the same as those described in the Northwest Forest Plan ROD. The objectives recognize that there is uncertainty associated with the continued persistence of species. Even absent any human-induced effects, the likelihood that habitat will continue to support species' persistence can vary among species. For example, the continued persistence of rare species, whose entire range may comprise only a few acres, is inherently at greater risk due to natural disturbance than species with larger ranges and more locations, when considered over the long term. Thus, the achievement of species persistence is not subject to precise numerical interpretation and cannot be fixed at any one single threshold (USDA, USDI 1994b, p. 44).

In general, all three action alternatives in this SEIS include measures designed to help the Northwest Forest Plan provide for the persistence of late-successional and old-growth forest related species. However, each alternative includes different ways of providing for persistence and, therefore, have different outcomes and levels of uncertainty.

Chapter 3&4 of this SEIS provides a discussion about the effects to species expected under each alternative, at least to the extent the available information about most of these species permits. Effects are described in terms of distribution patterns and population stability expected by thecombination of the standards and guidelines in each alternatives and other elements of the Northwest Forest Plan.

Concern for Persistence

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One of the basic criteria for applying the Survey and Manage mitigation to a species is concern for persistence. When the reserve system and other standards and guidelines of the Northwest Forest Plan do not appear to provide a reasonable assurance of persistence, there is a concern for persistence. When there is reasonable assurance that other elements (other than Survey and Manage) of the Northwest Forest Plan provide for persistence, there is little or no concern for persistence, and the species may be removed from Survey and Manage.

Criteria indicating a concern for persistence: One or more of the following criteria may indicate a concern for species persistence. These criteria must be considered, aside from Survey and Manage, in the context of other standards and guidelines of the Northwest Forest Plan, and must apply within the Northwest Forest Plan area.

- Low-to-moderate number of likely extant known sites/records in all or part of a species range.
- Low-to-moderate number of individuals.
- Low-to-moderate number of individuals at most sites or in most populations.
- Very-limited to somewhat-limited range.
- Very-limited to somewhat-limited habitat.
- Distribution within habitat is spotty or unpredictable in at least part of its range.

Note: The criteria for Alternative 2 are different, since the criteria will only affect additions to, or removals from, the "rare" categories. The criteria for Alternative 2 are listed in the adaptive management section for that alternative.

Criteria indicating little or no concern for persistence: Usually, most of these criteria need to be met to indicate that a concern for persistence does not exist. These criteria must apply within the Northwest Forest Plan area.

- Moderate-to-high number of likely extant sites/records.
- High proportion of sites and habitat in reserve land allocations; or limited number of sites within reserves, but the proportion or amount of potential habitat within reserves is high and there is a high probability that the habitat is occupied.
- Sites are relatively well distributed within the species range.
- Matrix Standards and Guidelines or other elements of the Northwest Forest Plan provide a reasonable assurance of species persistence.

Concern for persistence is based on current knowledge and is, therefore, changeable. While concern will remain for some species that are truly rare, concern for many species will be alleviated as more information is gathered through pre-disturbance surveys and strategic surveys. A species for which there is no longer concern for persistence will be removed from Survey and Manage as described in the adaptive management section for each alternative.

Relative Rarity

The three action alternatives subdivide species for which there is a concern for persistence by their relative rarity, as either "rare" or "uncommon." The relative rarity subdivision is based on such factors as numbers of populations, distribution, commonality of habitat, population trends, numbers of individuals, and so forth. Placement of species in management categories depends largely on their relative rarity as described below. Management directions for "rare" and "uncommon" species are not the same, because relative rarity changes the level of concern and, therefore, the management needed to provide for a reasonable assurance of persistence. Like concern for persistence, this subdivision is based on current knowledge and is changeable.

A determination that a species is "rare" is based on a combination of information, as described in the criteria for each category. A species may be rare if it has: (1) limited distribution; (2) a low number of sites or individuals per site; (3) highly specialized habitat requirements; (4) declining

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habitat or population trends; (5) reproductive characteristics that limit population growth rates; (6) restricted distribution pattern relative to range or potential habitat; and/or, (7) narrow ecological amplitude.

A determination that a species is "uncommon" is based on information that indicates a species may have: (1) more widespread distribution; (2) higher number of sites; (3) low-to-high number of individuals per site; (4) more stable populations or habitats; (5) less restricted distribution pattern relative to range or potential habitat; and, (6) moderate-to-broad ecological amplitude (see criteria under each category, later in this chapter).

Management Recommendations

Each alternative includes requirements to manage all known sites or manage high-priority sites. Management Recommendations are documents that address how to manage known sites and that provide guidance to Agency efforts in conserving Survey and Manage species. They are written for the species range or, in rare cases, may apply to provinces within the range. They are the responsibility of management working closely with taxa experts; they are developed by taxa experts and land managers (at any administrative level) for use at field offices of the BLM and Forest Service. Because these documents describe site management, and for uncommon species, identify sites not needed to provide a reasonable assurance of persistence, they are subject to review by the REO. This review is to ensure they identify and integrate the habitat or life-history factors key to managing the species to the level of protection intended in the standards and guidelines.

Management Recommendations describe the habitat parameters (environmental conditions) that will provide for a reasonable likelihood of persistence of the taxon at that site. These parameters serve as the basis for site-specific decisions about the size of buffers to be applied and whatmanagement activities are appropriate within the site. The size of the area to be managed depends on the habitat and requirements for the species. Management may range from maintaining one or more habitat components (such as down logs or canopy cover) to complete exclusion from disturbance for many acres, and may allow loss of some individuals, areas, or elements not affecting continued site occupancy. In high fire frequency areas such as east of the Cascades or in the Klamath Provinces, specific consideration should be given to the acceptability of the use of prescribed fire in known sites to reduce the risk of future large-scale or high intensity fire, even if it entails some risk to individual site occupancy.

Management Recommendations for uncommon species should also identify high-priority sites that must be managed to provide for a reasonable assurance of persistence of the taxon (or the procedures for designating such sites locally), as well as sites that no longer need to be managed for the benefit of those species. Management Recommendations may also identify areas where it is no longer necessary to continue surveys prior to habitat-disturbing activities or strategic surveys for the taxon. The Management Recommendation may also provide information on natural history, current species status, species distribution, management goals and objectives, specific management actions or recommendations, and needs for information and research to the extent such information supports management of known sites, identification of high-priority sites, and identification of survey priorities. Finally, where information about a species indicates the combination of manage known sites, pre-disturbance surveys, and strategic surveys (and other standards and guidelines of the Northwest Forest Plan) does not provide a reasonable assurance of persistence or does not provide the most efficient way of meeting the persistence objective, Management Recommendations may include additional or in-lieu direction, subject to appropriate NEPA analysis. Such direction may rely on habitat models and other valid scientific analyses that indicate a high probability of occupancy by the species.

Management Recommendations written prior to the Record of Decision for this SEIS may continue to be used until superseded by later versions. Existing Management Recommendations will be revised as new information indicates a need. Revised versions may be applied

immediately but will normally be applied to NEPA decisions or decision documents signed 90 or more days after release of the Management Recommendation. In some cases they may include a specific effective date or other language indicating when they are to be applied, depending on when they are issued, what differences there are from the previous version, and the importance of those differences.

For species newly assigned to categories requiring management of known sites, either as a result of the Record of Decision or the annual species review process, manage known site direction applies to NEPA decisions or decision documents (for habitat-disturbing activities) signed after the effective date of the new assignment.

Surveys Prior to Habitat-Disturbing Activities (Pre-Disturbance Surveys)

In each alternative, some categories of species require that site-specific, pre-disturbance surveys be conducted prior to signing NEPA decisions or decision documents for habitat-disturbingactivities. These are "clearance" surveys that focus on the project unit with the objective of reducing the inadvertent loss of undiscovered sites by searching specified potential habitats prior to making decisions about habitat-disturbing activities. They are done according to the Survey Protocol for each species and can use methods such as transects or plots that focus on priority habitats, habitat features, or involve the entire project area. These surveys are often referred to simply as pre-disturbance surveys. There are two types of pre-disturbance surveys. Pre-disturbance surveys are "practical" for species whose physiological characteristics make them likely to be located with reasonable effort. The second type, "equivalent-effort" surveys, are prescribed in Alternative 3 for species whose characteristics, such as extremely small size or irregular cycles when identifying characteristics are visible, make identification during pre-disturbance surveys less likely. The differences between these two types of pre-disturbance surveys, as well as the definition of habitat-disturbing activities, timing requirements for surveys, and the requirements for survey protocols are described in more detail below.

Practical Pre-disturbance Surveys

Identification of species for which surveys are practical is basic to helping define the categories of Survey and Manage. If pre-disturbance surveys are practical, the risk of inadvertent loss of undiscovered sites and the likelihood that management activities will be detrimental to meeting species persistence objectives can both be substantially reduced. Conducting practical pre-disturbance surveys also reduces the urgency to locate sites through the use of strategic surveys, at least as compared to species for which pre-disturbance surveys are not practical.

The criteria below define when pre-disturbance surveys are practical or not practical. In general terms, the criteria are designed so that surveys will be found to be practical if a reasonable effort would be likely to determine the presence of a species on a specific area, although the criteria themselves should be used in making the determination, and no quantitative standard is implied. Put another way, practicality of surveys generally relates to the ability to confidently answer questions about species presence through surveys, while avoiding unreasonable costs or spending unreasonable amounts of time. The definition of practical is intended to be comparable to that described in the Northwest Forest Plan Record of Decision as being not "difficult" (Appendix J2 in USDA, USDI 1994a; and USDA, USDI 1994b, pp. C-5 and C-6). However, it is not anticipated that these surveys will find every site.

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Surveys prior to initiation of habitat disturbance are considered "practical" if all of the following criteria apply. Surveys prior to habitat-disturbing activities are considered not practical if any of these factors do not apply.

- The taxon appears annually or predictably, producing identifying structures that are visible for a predictable and reasonably long time.
- The taxon is not so minuscule or cryptic as to be barely visible.
- The taxon can authoritatively be identified by more than a few experts, or the number of available experts is not so limited that it would be impossible to accomplish all surveys oridentifications for all proposed habitat-disturbing activities in the Northwest Forest Plan area needing identification within the normal planning period for the activity.
- The taxon can be readily distinguished in the field and needs no more than simple laboratory or office examination to confirm its identification.
- Surveys do not require unacceptable safety or species risks.
- Surveys can be completed in two field seasons (approximately 7-18 months).
- Credible survey methods for the taxon are known or can be developed within a reasonable time period (approximately 1 year).

Equivalent-Effort Pre-disturbance Surveys (Alternative 3 only)

Like Alternatives 1 and 2, Alternative 3 requires surveys prior to habitat-disturbing activities for many species for which such surveys are practical as described above. Alternative 3 also requires "equivalent-effort" surveys for many species whose characteristics make detection during such surveys less likely and, therefore, do not qualify as practical. Equivalent-effort surveys are pre-disturbance surveys conducted similarly to practical surveys (to the same intensity and effort--usually one field season and no more than two), according to written Survey Protocols, and during the times when the likelihood of detecting the species is highest. Because species characteristics make detection less likely, however, equivalent-effort surveys are only designed to locate the species if it occurs in an identifiable condition during a reasonable survey time period (no more than two field seasons). The survey is an "equivalent effort" to practical surveys, with protocol adjusted to deal with the one or more of the factors described above that make determining presence of the species unlikely.

There are only two differences between equivalent-effort surveys and practical surveys. One difference is that equivalent-effort surveys may need to accommodate one or more of the practicality factors listed above. The other difference is that equivalent-effort surveys are not expected to meet the description of "likely to determine the presence" of a species because the characteristics of these species make finding sites less certain.

Habitat-Disturbing Activities

Habitat-disturbing activities are defined as those disturbances likely to have a significant negative impact on the species' habitat, its life cycle, microclimate, or life support requirements. The evaluation of the scale, scope, and intensity of the anticipated negative impact of the project on habitat or life requirements should include an assessment of the type, timing, and intensity of the disturbing activity. "Habitat-disturbing" is not necessarily the same as "ground-disturbing;" helicopter logging or logging over snow-pack, for example, may not disturb the ground but might clearly affect microclimate or life cycle habitat factors. Conversely, an activity having soil-disturbing effects might not have a large enough scope to trigger a need to survey. Such a case would be the installation of a sign post within a campground. Routine maintenance of improvements and existing structures is not considered a habitat-disturbing activity. Examples of routine maintenance include pulling ditches, clearing encroaching vegetation, managing existing seed orchards, and falling hazard trees.

The line officer should seek specialists' recommendations to help determine the need for a survey based on site-specific information. In making such determination, the line officer should consider the probability of the species being present on the project site, as well as the probability that the

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project would cause a significant negative effect on the species habitat or the persistence of the species at the site.

Pre-disturbance surveys are not required in the unusual circumstance such that a delay in implementation of the activity (to permit pre-disturbance surveys) would result in greatly increased and unacceptable environmental risk. Such circumstances are subject to review by the REO to ensure the urgency of the activity justifies the risk to species.

Pre-disturbance surveys are not required for wildland fires for resource benefits in designated Wilderness. Wildland fires for resource benefits are prescribed fires that result from natural ignition, are consistent with the applicable land and resource management plan, are addressed in a fire management plan, and are burning within prescription. Even though prescriptions are written well in advance of the burn, pre-disturbance surveys are not required because they would be impractical given the large area covered by prescriptions and the irregular nature of natural ignitions, and because potential impacts to Survey and Manage species is limited because the objective of such fires is limited to mimicking natural processes and succession (1964 Wilderness Act, Section 2(a)) (FSM 2323.32). Exceptions to the pre-disturbance survey requirement may be proposed, subject to REO review, for other wildland fires for resource benefits in backcountry, Wilderness Study Areas, roaded natural, and similar areas where the objective of such fires is similar to those in Wilderness.

Exceptions to the pre-disturbance survey requirement may also be proposed for wildland fire for resource benefits in Late-Successional Reserves if the Late-Successional Reserve Assessment addresses the potential presence and likely effect on Survey and Manage species, and REO review of that aspect of the Assessment concludes such fire(s) will not prevent achievement of the persistence objectives of the selected alternative.

Timing Requirements for Surveys

The intent of "surveys prior to habitat-disturbing activities" is to gather relevant information during the NEPA process so that it is available for the decision-maker before actions are taken. Ideally, this information would be available to the Interdisciplinary Teams during preparation of an EA or Draft EIS so it could be used in project analysis, formulation of alternatives, and evaluation of effects. Required surveys should be completed and their results included in an EA or Draft EIS whenever practicable. This would have the added advantage that results would be available during the public review and comment process.

Project schedules could be severely disrupted if the requirement for additional pre-disturbance surveys were imposed after the decision is made and final design, field layout, or contract preparation have begun. Therefore, the date of the decision is the cut-off date for therequirement to conduct "surveys prior to habitat-disturbing activities." In other words, once the decision is made no additional survey requirements are imposed; no NEPA analysis will have to be re-done and no decisions will have to be re-made because of additional survey requirements.

The date of the decision is the signing of the NEPA Decision (for the Forest Service) or Decision Notice (for the BLM). Grace periods for newly added species or increases in known range are described under Pre-disturbance Survey Protocols below.

Application of Manage Known Sites Direction

Even though pre-disturbance surveys are completed prior to the NEPA decision or decision document, manage known site direction will typically be applied to additional sites of rare species incidentally discovered during other field work after the decision date but prior to sale date (or for non-contract activities, actual on-the-ground application of work). Manage known site direction may also be applied to additional sites for uncommon species, depending upon factors such as the level of concern for persistence of the species and its habitat in and adjacent to the activity area.

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Pre-disturbance Survey Protocols

Survey Protocols for surveys prior to habitat-disturbing activities include instructions for locating the species. The instructions include such information as: likely habitat where the species is of concern, geographical area and substrate where the species is typically located, and timing of surveys to best locate the species, as well as appropriate search and sampling techniques, and detailed guidance for identifying the species. Supplemental information may include field identification guides and techniques for simple laboratory examination.

Pre-disturbance Survey Protocols should also identify habitat conditions or locations, or criteria for identifying such conditions locally, where surveys are not needed for a reasonable assurance of persistence. Such habitat may include, but not be limited to, seral stages, stand age, stand complexity, or stand origin, where occupied sites, if present, are likely incidental, non-viable, or otherwise not important for meeting overall species persistence objectives. For "uncommon" species, Survey Protocols should specify habitats or conditions (e.g. seral stages) not needing surveys because "high-priority" sites are not expected to be found there.

Existing Survey Protocols will be revised as new information indicates a need. Revised versions of protocols will normally apply to the next projects on which surveys are to be initiated. In some cases they may include a specific effective date, or other language indicating when they are to be applied, depending on when they are issued, what differences there are from the previous version, and the importance of those differences. The Record of Decision for this SEIS will not invalidate existing Survey Protocols or previous surveys, and the Agencies may continue to use existing Survey Protocols in conducting pre-disturbance surveys until they are revised. If the Record of Decision does not result in a change in status for a species that requiredpre-disturbance surveys under the No-Action Alternative, the requirement for pre-disturbance surveys for these species will continue to apply to all new activities.

New Pre-disturbance Survey Protocols will be prepared for species newly assigned to a category requiring surveys prior to habitat-disturbing activities, whether the category assignment is through the selected alternative in this SEIS or a future assignment through the adaptive management process. The protocols will be prepared by the end of the fiscal year following the fiscal year the species was assigned. The decision date for activities to which these protocols apply will depend on the number of years a survey is required. If a protocol requires 1 year of surveys, activities may proceed for 1 additional fiscal year before pre-disturbance surveys are required, to allow time to conduct the required surveys. If a protocol requires 2 years of surveys, activities may proceed for 2 additional fiscal years before pre-disturbance surveys are required. For example, if a species is added to this category on January 1, 2001, the protocol will be prepared no later than September 30, 2002, and (assuming a 1-year protocol) the protocol will apply to activities for which NEPA decisions or decision documents are signed after September 30, 2003. Preparation of a protocol earlier than the due date does not change the required effective date. If protocols are prepared earlier than required, the Agencies will have more lead time for training, surveys, and related project planning. The RIEC may recommend application of the survey requirement earlier if rarity and other information about a species indicates unusual urgency.

Strategic surveys or other information may, in the future, expand the known range of a species requiring pre-disturbance surveys into areas not previously identified in Survey Protocols or ISMS-related species range maps. Confirmation of such expansions will occur with RIEC approval of the results of the annual species review process. Since protocols in these cases are already prepared, the survey requirement applies to activities whose NEPA decision or decision document is signed in the calendar quarter following the first full survey season (as defined in the protocol) after the expanded range is confirmed.

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Strategic Surveys

Introduction

Strategic surveys gather information at the landscape, population, or site-specific scale to address questions that relate to identified objectives for each category and address the need to manage for a reasonable assurance of species persistence. Information provided by strategic surveys (as well as research and other information-gathering efforts) will help address fundamental questions of Survey and Manage species, including: is there a concern for persistence; is the species rare or uncommon; what is the appropriate management for the species; and, do the reserve land allocations and other standards and guidelines of the Northwest Forest Plan provide a reasonable assurance of species persistence? Strategic surveys can also help refine habitat descriptions and define geographic range and information needs for future surveys, and could also provide important information on population status, life history, and habitat use. All of these questions are to be set in the context of the objectives of the NorthwestForest Plan, of which the Survey and Manage mitigation measure is but a part. Strategic surveys are prescribed for all categories in all action alternatives.

Information from strategic surveys feeds into the adaptive management process described under each alternative, provides information for the development of Management Recommendations and pre-disturbance Survey Protocols, and provides information to better focus subsequent strategic surveys if needed. Strategic surveys provide information required in order to change species categories or remove them from Survey and Manage. These surveys also provide information to help establish or confirm direction for managing known sites, identifying high-priority sites, and conducting pre-disturbance surveys. Finally, for species with very few sites, strategic surveys may be the primary tool for finding additional sites. Strategic surveys are different from "pre-disturbance surveys" (described earlier in these standards and guidelines) because they are focused on gathering information about the species and its habitat needs range-wide, and are not focused on determining presence or absence in specific areas prior to habitat-disturbing activities.

Various scales of strategic surveys are described below. The appropriate scale to be used, and the type of information to be gathered, are determined by the needs of each species and the needs or objectives suggested by the category to which they are assigned. However, strategic surveys are envisioned as "samples" with sampling intensity dependent upon information needs and the characteristics of the species and the habitat. The information to determine range, habitat associations, distribution, ability to survey for, and meet other strategic survey objectives is expected to come from a series of samples distributed on the landscape. Once surveys have reasonably established those parameters, or further surveys are not expected to contribute significant additional information toward those objectives, strategic surveys may be considered completed. For some very rare species, this means strategic surveys may be complete even if few or no additional sites are found. The long-term benefit to Survey and Manage species comes from continuing to apply other Survey and Manage Standards and Guidelines over time, not continuing to do strategic surveys indefinitely.

Identifying Information Needs and Priorities

The first step toward identifying strategic survey needs is the identification of the persistence and management questions for each species. Three primary questions guide this process:

1. What are the primary concerns for species persistence?
2. How do we manage species and habitats to ensure species persistence?
3. Does the species need the Survey and Manage Standards and Guidelines to provide a reasonable assurance of persistence?

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For planning purposes, information needs can be: (1) divided into species range and habitat associations; (2) to improve and direct species and habitat management; or, (3) directly relevant for dealing with specific persistence concerns. Information needs are compared with existing information (e.g., in ISMS and published literature) to determine current state of knowledge andto identify information gaps. These information gaps are considered in the context of existing management direction (e.g., what is the level of concern for persistence under other elements of the Northwest Forest Plan and within the present Survey and Manage category), to set the biological priorities for strategic surveys. Priorities are also determined by how the information may be used to increase management efficiency. If answers to these questions may lead to species changing categories or being removed from Survey and Manage, there is a benefit in reduced activity costs and reduced impacts to other forest management activities. Both the biological priorities and the management efficiency benefits must be described or quantified for display in the Strategic Survey Plan (see below) for use by management for setting survey priorities.

Strategic Survey Methods and Scales

Strategic Surveys may be accomplished through various methods, such as acquiring information from field surveys, herbaria, museums, literature, field units and other sources, and using various analytical tools such as building and validating habitat models. These methods are explored, developed, and analyzed for effectiveness and efficiency for acquiring the needed information.

The selection of one or more of these methods depends, at least in part, on the scale that will best address the information need. The different approaches to strategic surveys will consider the contributions of various scales of surveys generally characterized as:

Broad-scale surveys designed to:

- Include multiple species.
- Provide information on species occurrence, distribution, range, and habitat associations.
- Address different Survey and Manage questions by stratifying the survey area into significant ecological or geographical units such as forest age class (e.g., young stand vs. old-growth) or land allocations (e.g., Late-Successional Reserves vs. Matrix lands).
- Refine habitat characterization.

Mid- to fine scale surveys designed to:

- Refine habitat characterization.
- Provide information on how to manage species or their habitat, particularly at known sites.
- Provide information for the identification of high-priority sites for management.

Detailed studies (linked to research as appropriate) and other surveys designed to:

- Address specific questions and information needs (e.g., determining whether a species is still extant at a specific location, or conducting studies to examine specific disturbance effects on persistence of individuals at a site).

Species or surveys may be grouped for cost efficiency. Preliminary identification of available resources, including the administrative levels that will participate, is also a consideration.

Strategic Survey Plan

A Strategic Survey Plan displaying the known strategic survey needs for all species or species groups will be developed at the range-wide or regional scale, and generally be updated annually to reflect changes in information and priorities resulting from the previous years accomplishments or new information. The strategic survey plan is, of necessity, dynamic, particularly during the first

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years while information needs are clarified. Additionally, changes to categories or other new information will lead to new questions. The plan, with annual updates, will help ensure deadlines listed in these standards and guidelines are met and identify the magnitude and likely duration of the strategic survey program (at least for currently known information needs) for planning and scheduling purposes. The document will help focus annual work planning on the priority information needs, provide information for long-range planning, and facilitate the grouping of surveys for efficiency. The Strategic Survey Plan is subject to review by the RIEC to ensure identified information needs and priorities will further the objectives of the Northwest Forest Plan.

The plan will include, by species or taxa group:

- A summary of the information needs proposed to be answered by the strategic survey.
- The benefits expected by answering each identified need, either in terms of increased assurance of species persistence or reduced costs or impacts.
- Identification of methods (and scale) that would best meet the information needs.
- Relative priorities or priority-setting criteria. Management will set relative priorities or describe priority-setting criteria using the other three elements (and within expected resource availability).

Implementation and Responsibility

Responsibility for the design and coordination of strategic surveys rests with the regional offices of the Forest Service and state offices of the BLM, in collaboration with the U.S. Fish and Wildlife Service and Research Agencies, to ensure consistency, and because strategic surveys are generally intended to address information across a species range within the Northwest Forest Plan area. Coordination with both research agencies and field units regarding new information, assistance for design and conduct of surveys, identification of management needs, and availability of needed resources is important as well. Survey design should build upon or complement previous strategic, extensive, or general regional surveys whether conducted at the regional or local scale. Responsibility for implementation and follow-up actions may be delegated to administrative units or groups of administrative units, particularly where the range of a species is essentially confined to those units or the units are in a better position to assemble appropriate resources. Implementation includes all aspects of the planning and conduct of surveys, research, or other information-gathering activities. This may include hiring ofpersonnel, mobilizing crews, contracting, selecting survey sites, scheduling site visits, developing protocols, etc.

Information from strategic surveys (and other sources) is maintained primarily in the Interagency Species Management System (ISMS) database (see Appendix D) and on species distribution maps.

Analysis and Use of Results

Information from strategic surveys is used in the Species Review Process (see Appendix F and the Adaptive Management sections of each action alternative), is incorporated into Management Recommendations and pre-disturbance Survey Protocols, and becomes part of the “existing information” used in the future identification of information needs and priorities described above. All three of these uses may lead, directly or indirectly, to the need for additional information. Information from completed surveys, and the identification of new survey needs, will be incorporated into the Strategic Survey Plan as appropriate.

Specific objectives of strategic surveys vary by category, species, and management need. Strategic surveys for a species are considered to be complete when any one of the following four conditions apply, and the resultant information has been compiled and analyzed, as appropriate, and presented in the appropriate form for use by the target audience. This form may range from inputting the data into ISMS for use during the Species Review Process to preparing a summary of the data and related Management Recommendations to assist project planners. The four conditions are:

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1. The objectives of the strategic surveys (such as specific information needs) have been accomplished and information is sufficient to conclude that existing or resultant management direction will provide a reasonable assurance of persistence.

2. The objectives of the strategic surveys (such as specific information needs) have been accomplished and further surveys are not likely to contribute additional significant information about distribution, relative rarity, range, habitat associations, how to conduct pre-disturbance surveys, or other strategic survey objectives.

3. Adequate sites or habitats for the species have been located and are appropriately managed to provide reasonable assurance of persistence for the species.

4. For species with very limited habitat, all known potential habitat of the species has been surveyed, and there is little likelihood that additional undiscovered sites of the species will be located by further surveying.

Strategic survey accomplishments will be summarized in the Survey and Manage Annual Report.

Review by the Regional Ecosystem Office

Three documents are referenced in these standards and guidelines for the three action alternatives: Management Recommendations, Survey Protocols, and Strategic Survey Plan. Each document plays an important role in accomplishing Survey and Manage objectives. As described for the particular document elsewhere in these standards and guidelines, they are typically written for the species range. The documents are the responsibility of management working closely with taxa experts; they are developed by taxa experts and land managers (at any administrative level) for use at field offices of the BLM and Forest Service. New or revised versions of these documents are subject to review by the REO to ensure they identify and integrate the habitat or life-history factors key to managing the species to the level of protection intended in the standards and guidelines. Other processes (e.g., exceptions to management of known sites, changes in categories resulting from the annual species analysis) are also subject to REO (or RIEC) review as described in these standards and guidelines. The REO or RIEC may develop criteria to exempt certain documents or processes from review.

"Subject to review by the Regional Ecosystem Office" means review is required unless the REO has specifically provided an exemption. As described in the Northwest Forest Plan Standards and Guidelines, the REO provides staff work and support to facilitate RIEC decisions. Although the standards and guidelines refer to REO review, it is understood that the REO recommends to the RIEC who has responsibility for the decisions. The RIEC may delegate responsibility to complete these reviews (USDA, USDI 1994b, p. E-16).

The Adaptive Management Process

The Adaptive Management process (including the annual Species Review Process and use of new information about species) is the same for Alternatives 1 and 3. The Adaptive Management process for Alternative 2 differs only in the criteria indicating a concern for persistence and the addition of four paragraphs specific to Category 2D which expires in 5 years in that alternative. The standards and guidelines for the Adaptive Management process are included at the end of the other standards and guidelines for Alternatives 1 and 2, because they more logically follow the descriptions of the alternatives.

Alternative 1 - The Preferred Alterative

Introduction

Alternative 1 is designed to respond to the Purpose and Need while continuing to provide approximately the same level of species protection as intended in the Northwest Forest Plan. Survey and Manage species are grouped into six categories (1A-1F) as shown below. The six categories are based on level of relative rarity, ability to reasonably and consistently locate occupied sites during surveys prior to habitat-disturbing activities, and the level of information known about the species or group of species.

The six categories make it easier to clarify species objectives and apply specific management direction, compared to the No-Action Alternative, partly because Alternative 1 assigns each species to only one category. The standards and guidelines of Alternative 1 describe the objective, assignment criteria, and management direction for each category.

Alternative 1 combines most standards and guidelines for Protection Buffer and all of those for Protect Sites From Grazing into Survey and Manage, and edits and moves the remaining standards and guidelines for Protection Buffers, as well as those for Additional Protection for Bats, to "Standards and Guidelines Common to All Land Allocations." Species in Protection Buffers and Protect Sites From Grazing proposed for placement in Survey and Manage are included on Table 2-2, located at the end of this chapter. Alternative 1 proposes removing 63 species from Survey and Manage and related standards and guidelines (see Table 2-4), and removing 9 species for part of their range (see Table 2-5). The reason for proposing these species removals is that new information, or re-examination of existing information, indicates the species do not meet the Survey and Manage basic criteria. Changes in the level of management between Alternative 1 and No-Action are listed, by species, in Tables 2-8 and 2-9, and summarized by taxa group in Table 2-10.

Alternative 1 includes an adaptive management section defining how to change species among the six categories and how to add or remove species from Survey and Manage, in response to new information.

The section in this chapter entitled Provisions Common to Alternatives 1, 2, and 3 is incorporated as part of the standards and guidelines for Alternative 1.

Alternative 1 - Redefine Categories Based on Species Characteristics			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 1A** - 57 species Manage All Known Sites Pre-Disturbance Surveys Strategic Surveys	**Category 1B** - 222 species Manage All Known Sites N/A Strategic Surveys	**Category 1E** - 22 species Manage All Known Sites N/A Strategic Surveys
Uncommon	**Category 1C** - 10 species Manage High-Priority Sites Pre-Disturbance Surveys Strategic Surveys	**Category 1D** - 14 species[1] Manage High-Priority Sites N/A Strategic Surveys	**Category 1F** - 21 species N/A N/A Strategic Surveys

[1] Includes three species with surveys practical but not necessary.

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Survey and Manage

These standards and guidelines apply within all land allocations; however, the Survey and Manage provision for each species will be directed to the range (or portion of range) of that species, to the particular habitats where concerns exist for its persistence, and to the management activities considered "habitat-disturbing" for that species. The Survey and Manage Standards and Guidelines will benefit species closely associated with late-successional and old-growth forests including certain amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod groups. Information about these species, acquired through application of these standards and guidelines, should facilitate project planning, adaptive-management changes, and adjustments to these provisions.

Table 2-2 (Species Included in Survey and Manage Standards and Guidelines and Category Assignment Under Each Alternative), located at the end of this chapter, shows which species are addressed in the Survey and Manage provision and the assignment of these species into the six categories (1A, 1B, 1C, 1D, 1E, or 1F).

Description of Categories

The following text describes the six categories (1A-1F) in Alternative 1. The categories in this alternative are referenced as 1A, 1B, etc., to link the category to Alternative 1. The category discussions include additional information that clarifies the linkage between objectives and management actions of each category and describes the criteria for assigning species to the various categories. A taxon, or range-defined portion of a taxon, can be assigned to only one category.

Category 1A (Rare, Pre-disturbance Surveys Practical)

Objective: Manage all known sites and minimize inadvertent loss of undiscovered sites.

Criteria for assigning a species to Category 1A are:

- The species is rare and all known sites or population areas are likely to be necessary to provide reasonable assurance of species persistence, as indicated by one or more of the following:
  – Low number of likely extant sites/records on federal lands indicates rarity.
  – Species poorly distributed within its range or habitat.
  – Limited number of individuals per site.
  – Highly specialized habitat requirements (narrow ecological amplitude).
  – Dispersal capability limited relative to federal habitat.
  – Microsite habitat limited.
  – Reproduction or survival not sufficient.
  – Low number of sites in reserves or low likelihood of sites or habitat in reserves.
  – Habitat fragmentation that causes genetic isolation.
  – Factors beyond management under the Northwest Forest Plan affect persistence, but special management under the Northwest Forest Plan will help persistence.
  – Declining habitat trend.
- Pre-disturbance surveys are practical.

Management Direction:

Manage All Known Sites. Current and future known sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations. (See glossary for definition of "known site.")

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Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Surveys Prior to Habitat-Disturbing Activities. Surveys will be conducted at the project level prior to habitat-disturbing activities, and in accordance with Survey Protocols, to avoid loss of undiscovered sites by habitat-disturbing activities. Species sites found as a result of these surveys will be managed as known sites.

Strategic Surveys. The objective of strategic surveys in this category is to search for additional sites and to characterize the habitat, improving the ability of the Agencies to know where to survey and how to manage the species. These surveys will build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these strategic surveys will be managed as known sites.

Strategic Surveys may address one or more of the following:

- Are known sites still extant?
- What is the habitat of the species?
- Identify high-probability habitat for surveys to find new sites.
- Where else does the species occur? Find new sites.
- Collect habitat information to assist with managing the species.
- What is the status of the population (such as number of individuals, size)?
- What is the distribution of the species relative to the land allocations established in the Northwest Forest Plan?

Category 1B (Rare, Pre-disturbance Surveys Not Practical)

Objective: Manage all known sites and reduce the inadvertent loss of undiscovered sites.

Criteria for assigning a species to Category 1B:

Same criteria as Category 1A, except that pre-disturbance surveys are not practical.

Management Direction:

Manage All Known Sites. Same as Category 1A.

Strategic Surveys. The objective of strategic surveys in this category is to find additional new sites and to characterize the habitat, improving the ability of the Agencies to know where to survey and how to manage and conserve the species. To reduce the inadvertent loss of undiscovered sites, the Agencies will not sign NEPA decisions or decision documents for habitat-disturbing activities in old-growth forest (a sub-set of late-successional forest - see glossary) in fiscal year 2006 (fiscal year 2011 for fungi) and beyond, unless either:

- strategic surveys have been completed for the province that encompasses the project area, or;
- equivalent-effort surveys have been conducted in the old-growth habitat to be disturbed.

Strategic surveys build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of strategic surveys will be managed as known sites. Strategic survey accomplishments, including completion by province, will be summarized in the annual report. “Old growth” is specified in this standard and guideline to assure retention of what is assumed to be the highest quality potential habitat for Survey and Manage species until strategic surveys are completed or equivalent-effort surveys are conducted. “Province” is specified as the geographic unit in which to assess completion of strategic surveys given that it represents the smallest, logical, well-defined area for which the results of strategic surveys likely could be compiled, analyzed, and presented with meaningful results.

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Strategic Surveys may address one or more of the following:

- Are known sites still extant?
- What is the habitat of the species?
- Identify high-probability habitat for surveys to find new sites.
- Where else does the species occur? Survey high-probability habitat at highest risk to find new sites.
- What is the distribution of the species relative to the land allocations established in the Northwest Forest Plan?
- Collect habitat information to assist with managing the species.
- What is the status of the population (such as number of individuals, size)?

Category 1C (Uncommon, Pre-disturbance Surveys Practical)

Objective: Identify and manage high-priority sites to provide for reasonable assurance of species persistence. Until high-priority sites can be determined, manage all known sites.

Criteria for assigning a species to Category 1C are:

- The species is uncommon, and not all known sites or population areas are likely to be necessary for reasonable assurance of persistence, as indicated by one or more of the following:
  – A higher number of likely extant sites/records does not indicate rarity of the species.
  – Low-to-high number of individuals per site.
  – Less restricted distribution pattern relative to range or potential habitat.
  – Moderate-to-broad ecological amplitude.
  – Moderate-to-high likelihood of sites in reserves.
- Pre-disturbance surveys are practical.

Management Direction:

Manage High Priority Sites. High-priority sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations. Until a Management Recommendation is written addressing high-priority sites, either assume all sites are high priority, or local determination (and project NEPA documentation) of non-high priority sites may be made on a case-by-case basis with: (1) guidance from the Interagency Survey and Manage Program Manager; (2) local interagency concurrence (FS, BLM, FWS); (3) documented consideration of the condition of the species on other administrative units as identified by the Program Manager - typically adjacent units as well as others in the species range within the province; and, (4) identification in ISMS. The Survey and Manage Program Manager will involve appropriate taxa specialists.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional high-priority sites not needed for persistence. These exceptions will be reviewed by the REO.

Surveys Prior to Habitat-Disturbing Activities. Surveys will be conducted at the project level prior to habitat-disturbing activities and in accordance with Survey Protocols. Sites found as a result of these surveys will be managed as described above under manage high-priority sites. Management Recommendations or Survey Protocols may specify habitats or conditions (e.g. seral stages) not needing surveys because “high-priority” sites are not expected to be found there.

Strategic Surveys. The objective of strategic surveys in this category is to gather information to either develop or revise Management Recommendations, which will include identifying high-priority sites for management and how to manage to provide for a reasonable assurance of species

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persistence. Strategic surveys build upon and incorporate information from previous and ongoing surveys. Sites found as a result of these surveys will be managed as described above under manage high-priority sites.

Strategic Surveys may address one or more of the following:

- What is the quality of the known sites (such as habitat characteristics, longevity and continuity of habitat, and the status and characteristics of the population)?
- What is the geographic distribution of sites and extent of the range of species within the area of the Northwest Forest Plan (such as distribution of sites in the Northwest Forest Plan reserve allocations and the connectivity of known sites, both spatially and temporally)?
- Where does the species occur? Find new high-priority sites.
- Obtain information on habitat requirements to help manage known sites (e.g., developing Management Recommendations and identifying high-priority sites).

Category 1D (Uncommon, Pre-disturbance Surveys Not Practical or Not Necessary)

Objective: Identify and manage high-priority sites to provide for a reasonable assurance of species persistence. Until high-priority sites can be determined, manage all known sites.

Criteria for assigning a species to Category 1D:

- Same criteria as Category 1C, except that pre-disturbance surveys are not practical or are not necessary to meet objectives for species persistence because inadvertent loss of some undiscovered sites would not change level of rarity.

Some species for which pre-disturbance surveys are practical are placed in this category if there are a sufficient number of sites known to meet species objectives, and either Management Recommendations need to be written to define high-priority sites for management, or strategic surveys are needed to confirm distribution in reserves prior to future removal from Survey and Manage. These species are specifically identified on Table 2-2.

Management Direction:

Manage High-Priority Sites. Same as Category 1C.

Strategic Surveys. The objective of strategic surveys in this category is to gather information to either develop or revise Management Recommendations, which will include identifying high-priority sites for management and how to manage to provide for a reasonable assurance of species persistence. Strategic surveys build upon and incorporate information from previous and ongoing surveys. Sites found as a result of these surveys will be managed as described above under manage high-priority sites.

Strategic Surveys may address one or more of the following:

- What is the quality of known sites (such as habitat characteristics, longevity and continuity of habitat, and status and characteristics of population)?
- What is the geographic distribution of sites and extent of the species range within the area of the Northwest Forest Plan (such as distribution of sites in the Northwest Forest
- Plan reserve allocations and the connectivity of known sites, both spatially and temporally)?
- Where does the species occur? Find new high-priority sites.
- Obtain information on habitat requirements to help manage known sites (such as developing Management Recommendations and identifying high-priority sites).

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Category 1E (Rare, Status Undetermined)

Objective: Manage all known sites while determining if the species meets the basic criteria for Survey and Manage and, if so, to which category (1A, 1B, 1C, or 1D) it should be assigned.

Criteria for assigning a species to Category 1E:

- The number of likely extant sites/records and survey information on federal lands indicates possible rarity of the species; and
- Information is insufficient to determine whether Survey and Manage basic criteria are met or to determine what management is needed for a reasonable assurance of species persistence.

Management Direction:

Manage All Known Sites. Current and future known sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Strategic Surveys. The objective of strategic surveys in this category is to collect enough information to determine if the species meets the basic criteria for Survey and Manage, and to either place the species into the appropriate Survey and Manage category or remove the species from Survey and Manage.

Strategic surveys build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these surveys will be managed as known sites. In cases where the strategic survey indicates that there is still a concern for persistence, but the species is not closely associated with late-successional or old-growth forests, the species will be removed from Survey and Manage and considered for the Agencies' special status species programs.

Strategic Surveys may address one or more of the following:

- Is the species closely associated with late-successional and old-growth forests?
  – Revisit known sites, characterize the species habitat, and find new sites.
- Does the species occur within the Northwest Forest Plan area?
  – Survey potential habitat near known sites.
- What is the appropriate management for the species?
  – Does the species meet the basic criteria for Survey and Manage?
  – What is the appropriate Survey and Manage category?

Category 1F (Uncommon or Concern for Persistence Unknown, Status Undetermined)

Objective: Determine if the species meets the basic criteria for Survey and Manage and, if so, to which category (1A, 1B, 1C, or 1D) it should be assigned.

Criteria for assigning a species to Category 1F:

- The species is uncommon and the number of likely extant sites/records and survey information does not indicate rarity; and
- Information is insufficient to determine whether Survey and Manage basic criteria (including whether there is a concern for persistence) are met, or to determine what management is needed for reasonable assurance of species persistence.

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Management Direction:

Manage known sites is NOT required for this category because species are uncommon, not rare, and species within this category will be assigned to other categories or removed from Survey and Manage as soon as new information indicates the correct placement. Until that time, inadvertentloss of some sites is not likely to change the level of rarity. Other management direction is yet to be determined.

Strategic Surveys. The objective of strategic surveys in this category is to collect enough information to determine if the species meets the basic criteria for Survey and Manage, and to either place the species into the appropriate Survey and Manage category or remove the species from Survey and Manage. These surveys will build upon and incorporate information from previous and ongoing surveys. In cases where the strategic survey indicates that there is still a concern for persistence, but the species is not closely associated with late-successional or old-growth forests, the species will be removed from Survey and Manage and considered for the Agencies' special status species programs.

Strategic Surveys may address one or more of the following:

- Is the species closely associated with late-successional or old-growth forests?
- Does the species occur within the Northwest Forest Plan area?
- What is the appropriate management for the species?
  –Does the species meet the basic criteria for Survey and Manage?
  –What is the appropriate Survey and Manage category?
- What is the level of rarity?

Adaptive Management

(The following direction for Alternative 1 also applies to Alternative 3.)

The Agencies have encountered complexities in applying the present adaptive management process found in the Survey and Manage Standards and Guidelines due to the absence of specific steps and criteria in the Northwest Forest Plan Record of Decision for such changes or refinements. The following adaptive management detail is designed to make the standards and guidelines more efficient for the Agencies to implement and more responsive to the needs of the species.

The adaptive management process for the Survey and Manage Standards and Guidelines is refined by adding a specific process and criteria for making future adaptive management changes. The specific criteria for refining or changing species management are based on the strategies and objectives of the specific categories.

This process covers the acquisition, evaluation, and application of new information to move species between categories, remove species from Survey and Manage, add species to Survey and Manage, and develop or revise Management Recommendations, Survey Protocols, and the Strategic Survey Plan. The process described here will not change the number of categories, their definition or objectives, or the specific defining criteria or management direction applicable to the categories. Changes of that type would fall under the general adaptive managementdiscussion in the Northwest Forest Plan Record of Decision (USDA, USDI 1994b, pp. E-12 through E-15).

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The Adaptive Management Process

The adaptive management process for Survey and Manage Standards and Guidelines includes three steps:

1. Acquiring new information relative to Survey and Manage species.
2. Evaluating new information.
3. Implementing changes or refinements to Survey and Manage.

These three steps are described individually below.

Acquiring New Information Relative to Survey and Manage Species

New knowledge may arise from various sources. New information concerning species status or needs, and efficiency of the standards and guidelines, will be generated mostly through strategic and pre-disturbance surveys and other implementation experience as done in the past. The Agencies will also use a data call, open conference, or other method of soliciting appropriate new information about Survey and Manage species to help locate new credible information needed for conduct of the Species Review Process. Sources of new information may also include taxa experts, resource specialists, scientists, data from Agency surveys, research, and members of academia and other publics. This information is maintained primarily in the Interagency Species Management System (ISMS) database. New information may lead to adding, removing, or changing species assignments to Survey and Manage categories, as described below, or lead to changes to Management Recommendations and Survey Protocols, and changes to information needs identified in the Strategic Survey Plan, as described below and elsewhere in Chapter 2.

Evaluating New Information for Adding, Removing, or Changing a Species in Survey and Manage

A regional-level interagency group including taxa experts (see Species Review Process in Appendix F), meeting at least annually, will weigh new information against the criteria below to determine if additions or deletions of species from Survey and Manage or changes of species among categories, are warranted. Partial information or proposals to add or change species will not obligate the Agencies to gather additional information.

New information presented for evaluation in considering changes to Survey and Manage should address the criteria described below, as appropriate. The basic criteria for Survey and Manage are key to the evaluation process when proposing to add, remove, or change a category.

Criteria for Adding Species to Survey and Manage

Three Basic Criteria for Survey and Manage

1. The species must occur within the Northwest Forest Plan area, or occur close to the NFP area and have potentially suitable habitat within the NFP area.
2. The species must be closely associated with late-successional or old-growth forest (see Appendix E).
3. The reserve system and other Standards and Guidelines of the Northwest Forest Plan do not appear to provide for a reasonable assurance of species persistence.

Species proposed for addition to the Survey and Manage Standards and Guidelines must be taxonomic entities published in appropriate peer-reviewed journals accepted by the scientific community and, based on currently available information, must meet all three of the basic criteria for Survey and Manage.

The new information to support addition of a species to Survey and Manage must address the three basic criteria including the specific factors used as a basis for determining concern for persistence. The factors must apply to at least an identified portion of the species range, on federal lands, within the Northwest Forest Plan area.

One or more of the following factors may indicate that persistence is a concern. These factors must be considered in the context of other standards and guidelines (other than those related to Survey and Manage) in the Northwest Forest Plan:

- Low-to-moderate number of likely extant known sites/records in all or part of species range.
- Low-to-moderate number of individuals.

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- Low-to-moderate number of individuals at most sites or in most populations.
- Very-limited to somewhat-limited range.
- Very-limited to somewhat-limited habitat.
- The distribution of the species within habitat is spotty or unpredictable in at least part of its range.

Criteria for Removing Species from Survey and Manage

When new information indicates that a species no longer meets the Survey and Manage basic criteria, the species will be proposed for removal from the Survey and Manage Standards and Guidelines.

New information to support removing a species from the Survey and Manage Standards and Guidelines may address any one of the three Survey and Manage basic criteria. If a species is proposed for removal from the Survey and Manage Standards and Guidelines because there is not a concern for its persistence, the new information must address specific factors indicating that persistence is not a concern as listed below. The factors must apply to at least an identified portion of the species range, on federal lands, within the Northwest Forest Plan area.

Usually, most of the following factors must be true to indicate that persistence is not a concern:

- Moderate-to-high number of likely extant sites/records.
- High proportion of sites and habitat are in reserve land allocations; or limited number of sites within reserves, but proportion or amount of potential habitat within reserves is high, and there is high probability that the habitat is occupied.
- Sites are relatively well distributed within the species range.
- Matrix Standards and Guidelines or other elements of the Northwest Forest Plan provide for reasonable assurance of species persistence.

Species removed from the Survey and Manage Standards and Guidelines because they are not closely associated with late-successional or old-growth forests, but are still of concern for persistence, will be considered for inclusion in the Agencies' special status species programs.

Criteria for Changing a Species from One Category to Another in Survey And Manage

New information to support changing a species from one Survey and Manage category to another must address the specific criteria for the categories involved in the change. The new information must support the proposed change by showing how the species better meets the criteria for the proposed category.

The criteria for assigning a species to a different category are included under the Description of Categories section earlier in the description of this alternative.

Analysis Process for New Information

The process for analyzing or evaluating new information pertaining to species will involve a panel of agency taxonomic experts, resource specialists, and managers similar to the process used to evaluate new information in 1999 and 2000 (see Species Review Process in Appendix F). The panel of experts will convene at least once a year to evaluate and respond to new accumulated information and to propose changes to appropriate management of species under the Survey and Manage Standards and Guidelines to the RIEC.

The panel will use the specific criteria and factors defined for making determinations regarding whether there is a concern for persistence and placement of species within individual categories of Survey and Manage. Because Survey and Manage includes species about which little is known, the number and combination of criteria and factors used in making a judgment about concern for persistence or appropriate placement of each species within individual categories will vary,

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depending on the species and the type and quality of information available. The application of the criteria in the analysis process necessarily relies on the professional judgments of the panel of experts.

For purposes of these evaluations, the factors and criteria listed in these standards and guidelines and applied to each species will constitute the foundation of the assumptions, criteria, factors, and logic to support the conclusions. Application of the information to the criteria will be documented in writing for the record. The recommendations from the panel will be circulated to lead and cooperating agency taxa experts in draft form to identify errors, conflicting information,or other evidence that should be included with the information presented by the panel to the RIEC. Details of the Species Review Process will be available as administrative record for actions applying resultant changes in the future.

The Species Review Process proposed for future adaptive management changes under Survey and Manage Standards and Guidelines was developed and used for species analysis in this SEIS. Changes to Survey and Manage and Protection Buffer species management resulting from the analysis in this SEIS are included on Table 2-2 and summarized on Tables 2-8 through 2-10 at the end of this chapter. These changes are attributable to new information since 1994 and to a clarification and refinement of the criteria for assigning species to individual categories described in this section and under the descriptions of the individual categories.

Implementing Changes or Refinements to Survey and Manage

Making Changes to Management Recommendations, Survey Protocols, and the Strategic Survey Plan

Changes proposed to Management Recommendations, Survey Protocols, and the Strategic Survey Plan as a result of new information pertaining to species, or new information resulting from application experience, will be made using the same process used to develop the original Recommendations and Protocols. Changes to Management Recommendations, Survey Protocols, and the Strategic Survey Plan constitute administrative changes to the technical details of specific site management and surveys, and it is not anticipated such changes will require any further NEPA documentation.

Adding, Removing, and Changing Species Between Categories

The criteria and evaluation process for species that is presented in Appendix F, used in this SEIS, and proposed for use in future adaptive management changes is designed to continue approximately the same level of assurance of persistence as intended by the theme of this alternative. The process and results should be relatively consistent over time because the assumptions, criteria, and logic used in reaching determinations relating to species disposition under the Survey and Manage Standards and Guidelines will remain constant. Proposed changes to assignments of species to categories and proposals to remove species from Survey and Manage, resulting from the periodic evaluations of new information, will be forwarded to the RIEC for review to ensure that current information about the species has been appropriately considered and weighed against the stated criteria, and that the resultant proposal continues to provide at least the level of protection intended by the standards and guidelines. Adaptive management changes to assignments of species will be jointly adopted by the Forest Service and BLM and included in the annual report, along with a summary of the information supporting the changes. Since the effects to species are expected to be consistent with the effects anticipated and described in this document, it is not anticipated such changes will require regular, annual NEPA documentation. The parameters for making adaptive changes are part of the standards and guidelines, and as long as the changes are within these parameters, they would not constitutea change in this decision or constitute new information on effects not already anticipated and addressed in this SEIS. Prior to the annual application of results, the Agencies will examine whether the magnitude and nature of changes indicate a need for additional environmental analysis (e.g., an Environmental Assessment). The results of this examination will be documented in a Findings of Administrative

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Review document and summarized in the annual report. It is not anticipated that changes made pursuant to the species review process will require regular, annual NEPA documentation for three major reasons. First, the parameters for making such changes are clearly delineated and part of the standards and guidelines of the proposed action. Second, adjustments made pursuant to the annual species review process are fully expected to occur and are included in the set of assumptions on which the effects analyses of this Final SEIS have been made. Third, the status of species relative to the standards and guidelines should remain consistent with, and at least as secure as, that reflected in this Final SEIS, given that the criteria guiding the species review process have been designed in large measure to achieve such consistency. The Agencies will evaluate such changes over time to ensure their application is having the intended result and their accumulated effects are within the scope anticipated by this SEIS. At some point in the future, if such effects rise to the level exceeding that scope, supplemental NEPA analyses can be expected to be conducted at appropriate intervals as necessary or advisable.

The Agencies will involve the public and keep resultant changes and their application visible to the public so potential concerns about application of the above criteria to any particular species or area may be surfaced. First, the Agencies will utilize a data call, open conference, or other method of soliciting appropriate new information about Survey and Manage species. Second, the annual report will be sent to individuals or groups who request it. Individuals and groups that would like to receive the annual report should write to the Interagency Survey and Manage Program Manager, c/o Regional Ecosystem Office, P.O. Box 3623, Portland, OR 97208-3623. Public comments about species changes or anything else in the annual report are invited at any time, and should also be addressed to the Program Manager. Third, Agency NEPA documents for future habitat-disturbing activities will identify if any future changes in categories have been applied to the planned activity, or will reference a specific years assignments, as documented in the annual report, that appropriately applies to that activity or project. Specific public concerns about the application of a particular species assignment may be directed toward the activity applying the new assignment.

Protection Buffers

Prior to the addition of the Survey and Manage mitigation measure, the Northwest Forest Plan already included about 20 species-specific standards and guidelines called Protection Buffers for species thought to need additional management. Under Alternative 1, all Protection Buffer species, except those listed below, are moved to Survey and Manage categories as shown in Table 2-6, Placement of Protection Buffer Species Under Each Alternative, located at the end of this chapter. Known sites are managed as specified for the category to which they are placed, but the land allocations associated with them (unmapped Late-Successional Reserves andManaged Late-Successional Areas) are returned to their underlying or appropriate surrounding allocation.

The following Protection Buffer species are removed from this standard and guideline or are changed as explained below:

- *Ulota meglospora* is removed from this standard and guideline because it is not late-successional or old-growth forest related, and there is not a concern for its persistence.

- *Sarcosoma mexicanum* is removed from this standard and guideline in the State of Oregon except for Curry and Josephine Counties. Because numerous sites of this species exist in this area, there is no longer a concern for persistence there.

- *Ptilidium californicum* is removed from this standard and guideline in Oregon and Washington because it is common there and was not a concern in the original FEMAT screens.

- The White-headed Woodpecker, Black-backed Woodpecker, Pygmy Nuthatch, and Flammulated Owl Standard and Guideline (USDA, USDI 1994b, pp. C-45 through

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C-47) is revised (as shown below) to provide overall objectives, and is moved to "Standards and Guidelines Common to all Land Allocations." Specific application details are relegated to the Management Recommendation so they may be more easily kept current with existing science, experience, and species status. Changes to Management Recommendations are subject to review by the REO.

Standard and Guideline

The white-headed woodpecker, black-backed woodpecker, pygmy nuthatch, and flammulated owl will not be sufficiently aided by applying mitigation measures for riparian habitat protection or other elements of the Northwest Forest Plan. These four species occur on the periphery of the range of the northern spotted owl on the east slope of the Cascade Range in Washington and Oregon. Additionally, the white-headed woodpecker and flammulated owl occur in the Klamath Provinces in northwestern California and southwestern Oregon.

To ensure that the distribution and numbers of all four species do not decline on National Forests and BLM Districts within the range of the northern spotted owl, adequate numbers of large snags and green-tree replacements for future snags in appropriate forest types within the range of these four species will be maintained in sufficient numbers to maintain 100 percent of potential population levels of these four species.

The interim Management Recommendation (below) provides specific instructions for meeting the objectives and requirements of this standard and guideline. Management Recommendations for these species may be revised using the same process described inthese standards and guidelines for preparing or revising Management Recommendations for Survey and Manage species.

Interim Management Recommendation

The entire text of the Northwest Forest Plan Protection Buffer direction for the white-headed woodpecker, black-backed woodpecker, pygmy nuthatch, and flammulated owl (USDA, USDI 1994b, pp. C-45 through C-47), with the following two changes, is the interim Management Recommendation for these species.

1. The sentence reading *"Specifically, the Scientific Analysis Team recommends that no snags over 20 inches dbh be marked for cutting" is changed to read "Specifically, snags over 20 inches dbh are particularly valuable for these species. Snags over 20 inches dbh may be marked for cutting only after retaining the best available snags (considering size, longevity, etc.) in sufficient numbers to meet 100 percent of potential population levels of these four species."*

2. Snag numbers representing 100 percent potential population levels cited from Neitro 1985, must be updated as appropriate new references become available.

- *Canada Lynx*. Effective April 24, 2000, the Canada lynx was listed as threatened across its range in the conterminous United States under the Endangered Species Act. Although rare, Canada lynx are found within the Northwest Forest Plan area. The Forest Service has entered into a conservation agreement with the U.S. Fish and Wildlife Service (February 7, 2000) that applies throughout the listed range of the species. This agreement is intended to promote conservation of the Canada lynx and its habitat on lands managed by the Forest Service. The agreement identifies processes to incorporate Canada lynx conservation measures into land and resource management plans, and provides for actions and considerations associated with project planning and execution.

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- The agreement appends, by reference, two additional supporting documents prepared by an interagency group of scientists and species specialists. These two documents are the *Canada Lynx Conservation Assessment and Strategy,* and *The Scientific Basis for Lynx Conservation* (Ruggiero et al. 1999) (referred to as the Lynx Science Report). The complete text of the Forest Service/U.S. Fish and Wildlife Service conservation agreement, the *Canada Lynx Conservation Assessment and Strategy,* and the Lynx Science Report are available on the web at: www.fs.fed.us/r1/planning/lynx/lynx.html.

A similar conservation agreement has been developed between the Bureau of Land Management and the U.S. Fish and Wildlife Service (September 1, 2000) that applies to all lynx range on BLM lands, nationwide. This agreement is intended to promote conservation of the Canada lynx and its habitat on federal lands managed by thesignatories. However, the BLM has recently reviewed its evaluations of potential suitable Canada lynx habitat on lands it administers within the species' suspected range in the planning area. Based upon criteria for identifying and mapping suitable habitat as recommended by the Lynx Science Team, this recent review has concluded that no suitable Canada lynx habitat occurs on BLM administered lands in the planning area.

In response to the above events, the Northwest Forest Plan Canada lynx Standard and Guideline (USDA, USDI 1994b, pp. C-47 through 48) is removed and the following standard and guideline, based on the Canada Lynx Conservation Agreement, is added to "Standards and Guidelines Common to all Land Allocations."

Standard and Guideline

Proposed Actions. The Forest Service will follow the conservation agreement for the Canada lynx in making any new decision to undertake actions affecting Canada lynx or their habitat, and to fully meet their Endangered Species Act, National Forest Management Act, and National Environmental Policy Act responsibilities. A proposed or new action is one for which a federal agency does not yet have a decision notice, record of decision, or decision memo. Major features of this conservation agreement include:

For actions on National Forest System lands which are proposed by and/or involve third parties, such as pipeline corridors, access requests, issuance of new authorizations upon expiration of existing authorizations or permits, etc., the Forest Service, in consultation with the U.S. Fish and Wildlife Service, agrees to review and consider the new information on the Canada lynx included in the Lynx Conservation Assessment and Strategy, the Science Report, and appropriate local information to ensure compliance with all applicable federal laws, including the Endangered Species Act, National Environmental Policy Act, and the National Forest Management Act, during the Agency's analysis and decision-making processes. Grazing permits subject to Section 504 of the 1995 Rescissions Act will be issued consistent with that Act.

For actions on National Forest System lands which are proposed by the Forest Service and do not involve third parties, an evaluation of the action will be prepared using relevant new information, including the Lynx Conservation Assessment and Strategy and the Science Report, to determine whether the activity may affect Canada lynx. The Lynx Conservation Assessment and Strategy will be used and referenced in all determinations of effect for Canada lynx. If the evaluation indicates an activity is likely to adversely affect the lynx, the Agency will not authorize the activity until plans are revised or amended as described in Part 2 of the Canada Lynx Conservation Agreement to include Canada lynx conservation standards.

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The Forest Service, in cooperation with the U.S. Fish and Wildlife Service, will look for opportunities to undertake proactive management actions to benefit Canada lynx based on the Lynx Conservation Assessment and Strategy, to the extent they are consistent with current land and resource management plans.

Ongoing Actions. All agency actions in suitable Canada lynx habitat that have gone through agency planning processes and have a documented agency decision (decision memo, decision notice, or record of decision) will be reviewed, based on new information on the Canada lynx, including that in the Lynx Conservation Assessment and Strategy and Science Report, as appropriate, to ensure compliance with the Endangered Species Act, National Forest Management Act, National Environmental Policy Act, and other applicable laws.

Manage Recreation Areas to Minimize Disturbance to Species

The standard and guideline for Managing Recreation Areas to Minimize Disturbance to Species (USDA, USDI 1994b, p. C-6) is deleted because it is not necessary to meet species persistence objectives and no species are assigned to this standard and guideline. The reason that high numbers of reported Survey and Manage species sites are associated with recreation areas appears to be because many of these areas are being examined more frequently than other areas by Agency staff and other experts. A high number of Survey and Manage species in a recreation area should not suggest a higher priority for management of these areas. Management Recommendations for Survey and Manage species provide duplicate coverage.

Protect Sites From Grazing

The Protect Sites From Grazing direction in the No-Action Alternative applies to 10 mollusk species and 1 vascular plant species deemed particularly sensitive to grazing (USDA, USDI 1994b, p. C-6). Species associated with Protect Sites From Grazing are moved to Survey and Manage (see Table 2-7, Placement of Protect Sites From Grazing Species Under Each Alternative, located at the end of this chapter), except for *Pedicularis howellii,* which is removed from the standards and guidelines because it is not closely associated with late-successional or old-growth forests. *Pedicularis howellii* is being considered for addition to the Agencies' special status species program, and known sites will continue to be managed until their disposition is clarified in the special status species consideration.

Until Management Recommendations are written, current direction stating that "[k]nown and newly discovered sites of these species will be protected from grazing by all practical steps to ensure that the local population of the species will not be impacted" (USDA, USDI 1994b, p. C-6) will be used as the Management Recommendation for those species assigned to categories requiring management of known sites. For the three species currently having only "protect from grazing" direction, no other recommendations are imposed at this time.

Provide Additional Protection for Caves, Mines, and Abandoned Wooden Bridges and Buildings that are Used as Roost Sites for Bats

This standard and guideline (USDA, USDI 1994b, p. C-43) is revised as shown below to provide overall objectives for bats, and is moved to "Standards and Guidelines Common to all Land Allocations." Specific application details are relegated to the Management Recommendation so they may be more easily kept current with existing science, experience, and species status.

Standard and Guideline

Most bat species occurring in the Pacific Northwest roost and hibernate in crevices or caverns in protected sites. Suitable roost sites and hibernacula fall within a specific range of

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temperature and moisture conditions. Sites commonly used by bats include caves, mines, snags and decadent trees, wooden bridges, and old buildings. Provisions for retention of large snags and decadent trees are included in the standard and guideline for green tree patches in the Matrix. Caves, mines, and abandoned wooden bridges and buildings, however, are extremely important roost and hibernation sites that require additional protection to ensure their value as habitat is maintained.

This standard and guideline applies to all bat species that would benefit and that the reserves and other standards and guidelines of the Northwest Forest Plan may not provide a reasonable assurance of persistence. In all land allocations, protect caves, abandoned mines, abandoned wooden bridges and buildings used by bats from destruction, vandalism, and disturbance from road construction or blasting, or other activities that could change microclimate conditions or drainage patterns affecting use by bats. Protection of abandoned mines, bridges, or buildings must be contingent on safety concerns and legal requirements. Management of occupied sites will be consistent with the bats Management Recommendation. Site-specific roost plans based on inventory and mapping of resources will be completed when such plans are a needed tool to protect or mitigate roost habitat for bats.

The interim Management Recommendation (below) provides specific instructions for meeting the objectives and requirements of this standard and guideline. Management Recommendations for these species may be revised using the same process described in these standards and guidelines for preparing or revising Management Recommendations for Survey and Manage species. The Management Recommendations may include guidelines for: (1) conducting searches; (2) identifying likely bat use; (3) identifying appropriate circumstances for species identification; (4) establishing conditions under which specific mitigation measures will be applied to project activity plans; (5) describing various no-harvest buffer widths to fit specific habitat conditions; or, (6) other guidelines to help determine site-specific management needs.

For the purposes of this standard and guideline, caves are defined as in the Federal Cave Resources Protection Act of 1988 as:

> *"any naturally occurring void, cavity, recess, or system of interconnected passages which occur beneath the surface of the earth or within a cliff or ledge (...but not including any...man-made excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or man-made."*

Interim Management Recommendation

This Management Recommendation is intended to provide additional protection for roosting bats including fringed myotis, silver-haired bats, long-eared myotis, long-legged myotis, pallid bats, and Townsend's big-eared bats. This species list should be revised as necessary to include other bat species that: (1) would benefit from inclusion in this Standard and Guideline and (2) the reserves and other standards and guidelines of the Northwest Forest Plan may not provide a reasonable assurance of persistence.

The Agencies will conduct non-intrusive surveys to determine presence and type of use by bats at caves, abandoned mines, and abandoned wooden bridges and buildings. Until species-identification methods are developed that have a low level of impact to bats, individual species identification is not required in order to presume occupancy by the target species. For sites occupied by bats, the Agencies will prohibit timber harvest within 250 feet of the site, and develop management direction for the site, as necessary, that includes an inventory and mapping of resources, and plans for protection of the site from vandalism, disturbance from road construction or blasting, and any activity that could change cave temperatures or drainage patterns. The size of the buffer, and types of activities allowed within the buffer, may be modified through the management direction developed for the specific site.

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Townsend's big-eared bats are of concern to state wildlife agencies in both Washington and Oregon. These bats are strongly associated with caves, and are extremely sensitive to disturbance, especially from recreational cavers. When Townsend's big-eared bats are found occupying caves or mines on federal land, the appropriate state agency should be notified, and management prescriptions for that site should include special consideration for potential impacts on this species.

Alternative 2

Introduction

Alternative 2 is identical to Alternative 1 for the "rare" species. Alternative 2 assumes that the 45 "uncommon" species are the most likely species to be removed from Survey and Manage in the near future, and seeks to expedite that decision by concentrating efforts on completing strategic surveys within 5 years. Building on the classification system used in Alternative 1, Alternative 2 redefines Survey and Manage into four categories (2A-2D) based on relative rarity, the ability to reasonably and consistently locate sites during surveys prior to habitat-disturbing activities, and the level of information known about the species or group of species as shown below.

The four categories make it easier to clarify species objectives and apply specific management direction, compared to the No-Action Alternative, partly because Alternative 2 assigns each species to only one category. The standards and guidelines of Alternative 2 describe the objective, assignment criteria, and management direction for each category.

Like Alternative 1, Alternative 2 combines most standards and guidelines for Protection Buffer and Protect Sites From Grazing into Survey and Manage, and edits and moves the remaining standards and guidelines for Protection Buffers and those for Additional Protection for Bats to "Standards and Guidelines Common to All Land Allocations." A list of the Protection Buffers or Protect Sites From Grazing species proposed to be included in Survey and Manage is on Table 2-2, at the end of this chapter. Alternative 2 proposes removing 63 species from Survey and Manage and related standards and guidelines (see Table 2-4), and removing 9 species for part of their range (see Table 2-5). The reason for proposing these species removals is that new information or re-examination of existing information indicates the species do not meet the Survey and Manage basic criteria. Changes in the level of management between Alternative 2 and No-Action are summarized by taxa group on Table 2-10.

Alternative 2 - Remove or Reassign Uncommon Species Within 5 Years			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 2A** - 57 species Manage All Known Sites Pre-Disturbance Surveys Strategic Surveys	**Category 2B** - 222 species Manage All Known Sites N/A Strategic Surveys	**Category 2C** - 22 species Manage All Known Sites N/A Strategic Surveys
Uncommon	**Category 2D** - 45 species Manage All Sites Known as of 9/30/99---------->\ No Pre-Disturbance Surveys ---------->\ Strategic Surveys Completed in 5 years ---------->\		

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Similar to Alternative 1, Alternative 2 includes an adaptive management section defining how to change species among the three high-concern categories and how to add or remove species from Survey and Manage in response to new information.

The section in this chapter entitled Provisions Common to Alternatives 1, 2, and 3 is incorporated as part of the standards and guidelines for Alternative 2.

Survey and Manage

These standards and guidelines apply within all land allocations; however, the Survey and Manage provision for each species will be directed to the range, or portion of range, of thatspecies, to the particular habitats where there are concerns for persistence, and to the management activities considered "habitat-disturbing" for that species. The Survey and Manage Standards and Guidelines will benefit species closely associated with late-successional and old-growth forests including certain amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod groups. Information concerning these species that is acquired through application of these standards and guidelines should facilitate project planning, adaptive management changes, and adjustments to these provisions.

Table 2-2 (Species to be Protected Through Survey and Manage), located at the end of this chapter, shows which species are addressed in the Survey and Manage provision and the assignment of these species into the four categories (2A, 2B, 2C, and 2D, described below).

Description of Categories

The following text describes the four categories (2A, 2B, 2C, and 2D) in Alternative 2. These alternatives are referenced as 2A, 2B, etc., to link the categories to Alternative 2. The category discussions include additional information that clarifies the linkage between objectives and management actions of each category and describes the criteria for assigning species to the various categories. A taxon, or range-defined portion of a taxon, can be assigned to only one category. Categories 2A, 2B, and 2C are exactly the same in every respect as Categories 1A, 1B, and 1E, respectively, in Alternative 1.

Category 2A (Rare, Pre-disturbance Surveys Practical)

The objective, criteria, management direction, and species assigned to this category are the same as for Category 1A in Alternative 1.

Objective: Manage all known sites and minimize inadvertent loss of undiscovered sites.

Criteria for assigning a species to Category 2A are:

- The species is rare, and all known sites or population areas are likely to be necessary to provide reasonable assurance of persistence, as indicated by one or more of the following:
  – Low number of likely extant sites/records on federal lands indicates rarity.
  – Species poorly distributed within its range or habitat.
  – Limited number of individuals per site.
  – Highly specialized habitat requirements (narrow ecological amplitude).
  – Dispersal capability limited relative to federal habitat.
  – Microsite habitat limited.
  – Reproduction or survival not sufficient.
  – Low number of sites in reserves or low likelihood of sites or habitat in reserves.
  – Habitat fragmentation that causes genetic isolation.
  – Factors beyond management under the Northwest Forest Plan affect persistence, but special management under the Northwest Forest Plan will help persistence.

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– Declining habitat trend.
- Pre-disturbance surveys are practical.

Management Direction:

Manage All Known Sites. Current and future known sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Surveys Prior to Habitat-Disturbing Activities. Surveys will be conducted at the project level prior to habitat-disturbing activities, and in accordance with Survey Protocols, so as to avoid loss of undiscovered sites by habitat-disturbing activities. Species sites found as a result of these surveys will be managed as known sites.

Strategic Surveys. The objective of strategic surveys in this category is to search for additional sites and to characterize the habitat, improving the ability of the Agencies to know where to survey and how to manage the species. These surveys will build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these strategic surveys will be managed as known sites.

Strategic Surveys may address one or more of the following:

- Are known sites still extant?
- What is the habitat of the species?
- Identify high-probability habitat for surveys to find new sites.
- Where else does the species occur? Find new sites.
- Collect habitat information to assist with managing the species.
- What is the status of the population (such as number of individuals and population size)?

Category 2B (Rare, Pre-disturbance Surveys Not Practical)

The objective, criteria, management direction, and species assigned to this category are the same as for Category 1B in Alternative 1.

Objective: Manage all known sites and reduce inadvertent loss of undiscovered sites.

Criteria for assigning a species to Category 2B:

Same criteria as Category 2A, except that pre-disturbance surveys are not practical.

Management Direction:

Manage All Known Sites. Same as Category 2A.

Strategic Surveys. The objective of strategic surveys in this category is to find additional new sites and to characterize the habitat, improving the ability of the Agencies to know where to survey and how to manage and conserve the species. To reduce the inadvertent loss of undiscovered sites, the Agencies will not sign NEPA decisions or decision documents for habitat-disturbing activities in old-growth forest (a sub-set of late-successional forest - see glossary) in fiscal year 2006 (fiscal year 2011 for fungi) and beyond, unless either:

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- strategic surveys have been completed for the province that encompasses the project area, or;
- equivalent-effort surveys have been conducted in the old-growth habitat to be disturbed.\

Strategic surveys build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of strategic surveys will be managed as known sites. Strategic survey accomplishments, including completion by province, will be summarized in the annual report. "Old growth" is specified in this standard and guideline to assure retention of what is assumed to be the highest quality potential habitat for Survey and Manage species until strategic surveys are completed or equivalent-effort surveys are conducted. "Province" is specified as the geographic unit in which to assess completion of strategic surveys given that it represents the smallest, logical, well-defined area for which the results of strategic surveys likely could be compiled, analyzed, and presented with meaningful results.

Strategic Surveys may address one or more of the following:

- Are known sites still extant?
- What is the habitat of the species?
- Identify high-probability habitat for surveys to find new sites.
- Where else does the species occur? Survey high-probability habitat at highest risk to find new sites.
- What is the distribution of the species relative to land allocations established in the Northwest Forest Plan?
- Collect habitat information to assist with managing the species.
- What is the status of the population (such as number of individuals, size)?

Category 2C (Rare, Status Undetermined)

The objective, criteria, management direction, and species assigned to this category are the same as for Category 1E in Alternative 1.

Objective: Manage all known sites while determining if the species meets the basic criteria for Survey and Manage and, if so, to which category (2A or 2B) it should be assigned.

Criteria for assigning a species to Category 2C:

- The species is rare and the number of likely extant sites/records and survey information on federal lands indicates possible rarity of the species.
- Information is insufficient to determine whether Survey and Manage basic criteria are met or to determine what management is needed for a reasonable assurance of species persistence.

Management Direction:

Manage All Known Sites. Current and future known sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Strategic Surveys. The objective of strategic surveys in this category is to collect enough information to determine if the species meets the basic criteria for Survey and Manage, and to either place the species into the appropriate Survey and Manage category or remove the species from Survey and Manage.

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Strategic surveys build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these surveys will be managed as known sites. In cases where the strategic survey indicates that a species is potentially still rare, but the species is not closely associated with late-successional or old-growth forests, the species will be removed from Survey and Manage and considered for the Agencies' special status species programs.

Strategic Surveys may address one or more of the following:

- Is the species closely associated with late-successional and old-growth forests?
- Revisit known sites, characterize the species habitat, and find new sites.
- Does the species occur within the Northwest Forest Plan area?
- Survey potential habitat near known sites.
- What is the appropriate management for the species?
- Does the species meet the basic criteria for Survey and Manage?
- What is the appropriate Survey and Manage category?

Category 2D (Uncommon)

The 45 species assigned to this category are those assigned to Categories 1C, 1D, and 1F in Alternative 1. The objectives and management direction, however, are different in this alternative.

Objective: Provide for a reasonable assurance of species persistence by managing all sites (except those for arthropods) known as of September 30, 1999. Also, complete strategic surveys for all species within 5 years to determine whether to drop special management for these species or to assign individual species to the existing Agencies' special status species programs. This category (Uncommon) expires in 5 years when a determination is made regarding future management for each of the 45 species in this category. Category 2D species will not be moved to other Survey and Manage categories.

Criteria for assigning a species to Category 2D are:

- The species is uncommon, and not all known sites or population areas are likely to be necessary for reasonable assurance of persistence, as indicated by one or more of the following:
  – A higher number of likely extant sites/records does not indicate rarity of the species.
  – May have low-to-high number of individuals per site.
  – Less restricted distribution pattern relative to range or potential habitat.
  – Moderate-to-broad ecological amplitude.
  – Moderate-to-high likelihood of sites in reserves.

or

- The species is uncommon, and the number of likely extant sites/records and survey information does not indicate rarity; and
- There is not sufficient information to determine whether Survey and Manage basic criteria (including whether there is a concern for persistence) are met, or to determine what management is needed for species persistence.

Management Direction:

Manage All Known Sites. Sites known as of September 30, 1999 (including Del Norte and Siskiyou Mountain salamander sites documented as presumed occupied; does not include arthropods), will be managed according to the Management Recommendation for the species. No newly discovered sites will be added. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

This direction expires in 5 years when the results of required strategic surveys are evaluated to determine whether the species should be assigned to Agencies' special status species programs, or the evaluation indicates no additional species-specific provisions are needed. If the species is listed under a special status species program, all or a portion of the above sites and others may continue being managed under the receiving program direction.

Strategic Surveys. The objective of strategic surveys in this category is to gather information to determine if reserves and other elements of the Northwest Forest Plan provide for a reasonable assurance of species persistence or if the species should be assigned to management under another of the Agencies' special status species programs.

Strategic surveys build upon and incorporate information from previous and ongoing surveys. The Agencies will complete surveys for all species within 5 years.

Strategic Surveys may address one or more of the following:

- What is the quality of known sites (such as habitat characteristics, longevity and continuity of habitat, and status and characteristics of population), particularly within reserves?
- What is the geographic distribution of sites and extent of the range of species within the Northwest Forest Plan area (such as the distribution of sites in the Northwest Forest Plan reserve allocations and the connectivity of known sites, both spatially and temporally)?
- Where does the species occur?
- Obtain information on habitat requirements to correlate with habitat availability to help in determining a likelihood of assuring persistence.
- Is there still a concern that reserves and other elements of the Northwest Forest Plan will not provide a reasonable assurance of persistence?

Adaptive Management

(The following section differs from Alternative 1 and 3 only in the criteria for concern for persistence, one reference to categories, and in the addition of four paragraphs specific to Category 2D. All other paragraphs are the same.)

The Agencies have encountered complexities in applying the present adaptive management process found in the Survey and Manage Standards and Guidelines due to the absence of specific steps and criteria in the Northwest Forest Plan Record of Decision for such changes or refinements. The following adaptive management detail is designed to make the standards and guidelines more efficient for the Agencies to implement and more responsive to the needs of the species.

The adaptive management process for the Survey and Manage Standards and Guidelines is refined by adding a specific process and criteria for making future adaptive management changes. The specific criteria for refining or changing species management are based on the strategies and objectives of the specific categories.

This process covers the acquisition, evaluation, and application of new information to: (1) move species between categories, remove species from Survey and Manage, add species to Survey and Manage, and (2) develop or revise Management Recommendations, Survey Protocols, and the Strategic Survey Plan. The process described here will not change the number of categories, their definition or objectives, or the specific defining criteria or management direction applicable to the

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categories. Changes of that type would fall under the general adaptive management discussion in the Northwest Forest Plan Record of Decision (USDA, USDI 1994b, pp. E-12 through E-15).

The Adaptive Management Process

The adaptive management process for Survey and Manage Standards and Guidelines includes three steps:

1. Acquiring new information relative to Survey and Manage species.
2. Evaluating new information.
3. Implementing changes or refinements to Survey and Manage.

These three steps are described individually below.

Acquiring New Information Relative to Survey and Manage

New knowledge may arise from various sources. New information concerning species status or needs, and efficiency of the standards and guidelines, will be generated mostly through strategic and pre-disturbance surveys and other implementation experience as done in the past. The Agencies will also use a data call, open conference, or other method of soliciting appropriate new information about Survey and Manage species to help locate new credible information needed for conduct of the Species Review Process. Sources of new information may also include taxa experts, resource specialists, scientists, data from Agency surveys, research, and members of academia and other publics. This information is maintained primarily in the Interagency Species Management System (ISMS) database. New information may lead to adding, removing, or changing species assignments to Survey and Manage categories, as described below, or lead to changes to Management Recommendations and Survey Protocols, and changes to information needs identified in the Strategic Survey Plan, as described below and elsewhere in Chapter 2.

Evaluating New Information for Adding, Removing, or Changing a Species in Survey and Manage

A regional-level interagency group including taxa experts (see Species Review Process in Appendix F) meeting at least annually, will weigh new information against the criteria below to determine if additions or deletions of species from Survey and Manage or changes of species among "rare" categories, are warranted. Partial information or proposals to add or change species will not obligate the Agencies to gather additional information.

The process for reassigning Category 2D species in 5 years is described separately below. If Alternative 2 is selected, no species will be added to Category 2D during the 5 years following the effective date of the Record of Decision for this SEIS, and species in Category 2D will not be moved to another Survey and Manage category. At the end of 5 years, the 45 uncommon species will be dropped or placed in other management programs and there will not be a category of uncommon species in Survey and Manage.

New information presented for evaluation in considering changes to Survey and Manage should address the following criteria, as appropriate. The basic criteria for Survey and Manage are key to the evaluation process when proposing to add, remove, or change a category.

Criteria for Adding Species to Survey and Manage

Species proposed for addition to the Survey and Manage Standards and Guidelines must be taxonomic entities published in appropriate peer-reviewed journals accepted by the scientific community and, based on currently available information, must meet all three of the basic criteria for Survey and Manage.

Three Basic Criteria for Survey and Manage

1. The species must occur within the Northwest Forest Plan area, or occur close to the NFP area and have potentially suitable habitat within the NFP area.
2. The species must be closely associated with late-successional or old-growth forest (see Appendix E).
3. The reserve system and other Standards and Guidelines of the Northwest Forest Plan do not appear to provide for a reasonable assurance of species persistence.

The new information to support addition of a species to Survey and Manage must address the three basic criteria including the specific factors used as a basis for determining concern for persistence. The factors must apply to at least an identified portion of the species range, on federal lands, within the Northwest Forest Plan area.

One or more of the following factors may indicate that persistence is a concern. These factors must be considered in the context of other standards and guidelines (other than those related to Survey and Manage) in the Northwest Forest Plan:

- Low number of likely extant known sites/records in all or part of species range.
- Low number of individuals.
- Low number of individuals at most sites or in most populations.
- Very limited range.
- Very limited habitat.
- The distribution of the species within habitat is spotty or unpredictable in at least part of its range.

New species will not be added to Category 2D since this is an interim category that will expire in 5 years when longer-term management direction for those species is determined.

Criteria for Removing Species from Survey and Manage

When new information indicates that a species no longer meets the Survey and Manage basic criteria, the species will be proposed for removal from the Survey and Manage Standards and Guidelines. These criteria apply to Categories 2A, 2B, and 2C.

New information to support removing a species from the Survey and Manage Standards and Guidelines may address any one of the three Survey and Manage basic criteria. If the species is proposed for removal from Survey and Manage Standards and Guidelines because there is not a concern for persistence, the new information must address the specific factors indicating that persistence is not a concern as listed below. The factors must apply to at least an identified portion of the species range, on federal lands, within the Northwest Forest Plan area.

Usually, most of the following factors must be true to indicate that persistence is not a concern:

- Moderate-to-high number of likely extant sites/records.
- Moderate-to-high proportion of sites and habitat are in reserve land allocations; or limited number of sites within reserves, but proportion or amount of potential habitat within reserves is moderate-to-high, and there is moderate-to-high probability that the habitat is occupied.
- Sites are relatively well distributed or only partially restricted within the species range.
- Matrix prescriptions or other elements of the Northwest Forest plan provide for reasonable assurance of persistence.

Species removed from the Survey and Manage Standards and Guidelines because they are not closely associated with late-successional or old-growth forests, but are still of concern for persistence, will be considered for inclusion in the Agencies' special status species programs.

The above criteria apply only to Categories 2A, 2B, and 2C. Category 2D expires in 5 years, and the results of required strategic surveys are evaluated to determine whether the species should be assigned to the Agencies' special status species programs, or whether the evaluation indicates no

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additional species-specific provisions are needed. Determinations may be made sooner than 5 years if sufficient information is available.

The Forest Service Sensitive Species and BLM Special Status Species programs are designed to provide, typically in cooperation with applicable state agencies, management sufficient to preclude the need to list the species under the Endangered Species Act or otherwise conserve the species. For the Forest Service, for example, objectives include "maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitat distributed throughout their geographic range." Both Agencies have latitude to write appropriate conservation direction up to, and including, requiring surveys prior to habitat-disturbing activities and managing knownsites as needed for conservation of the species (FSM 2670.22, WO Amendment 2600-95-7) (USDI 1990 Instruction Memorandum No. OR-91-57).

Criteria for Changing a Species from One Category to Another in Survey And Manage

New information to support changing a species from one Survey and Manage category to another must address the specific criteria for the categories involved in the change. The new information must support the proposed change by showing how the species better meets the criteria for the proposed category.

The criteria for assigning a species to a different category are included under the Description of Categories section earlier in the description of this alternative.

Analysis Process for New Information

The process for analyzing or evaluating new information pertaining to species will involve a panel of agency taxonomic experts, resource specialists, and managers similar to the process used to evaluate new information in 1999 and 2000 (see Species Review Process in Appendix F). The panel of experts will convene at least once a year to evaluate and respond to new accumulated information and to propose changes to appropriate management of species under the Survey and Manage Standards and Guidelines to the RIEC.

The panel will use the specific criteria and factors defined for making determinations regarding whether there is a concern for persistence and placement of species within individual categories of Survey and Manage. Because Survey and Manage includes species about which little is known, the number and combination of criteria and factors used in making a judgment about concern for persistence or appropriate placement of each species within individual categories will vary, depending on the species and the type and quality of information available. The application of the criteria in the analysis process necessarily relies on the professional judgments of the panel of experts.

For purposes of these evaluations, the factors and criteria listed in these standards and guidelines and applied to each species will constitute the foundation of the assumptions, criteria, factors, and logic to support the conclusions. Application of the information to the criteria will be documented in writing for the record. The recommendations from the panel will be circulated to lead and cooperating agency taxa experts in draft form to identify errors, conflicting information, or other evidence that should be included with the information presented by the panel to the RIEC. Details of the Species Review Process will be available as administrative record for actions applying resultant changes in the future.

The Species Review Process proposed for future adaptive management changes under the Survey and Manage Standards and Guidelines was developed and used for species analysis in this SEIS. Changes to Survey and Manage and Protection Buffer species management resulting from the analysis in this SEIS are included on Table 2-2 and summarized on Tables 2-8 through2-10 at the end of this chapter. These changes are attributable to new information since 1994 and to a clarification and refinement of the criteria for assigning species to individual categories described in this section and under the descriptions of the individual categories.

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Implementing Changes or Refinements to Survey and Manage

Making Changes to Management Recommendations, Survey Protocols, and the Strategic Survey Plan

Changes proposed to Management Recommendations, Survey Protocols, and the Strategic Survey Plan as a result of new information pertaining to species or new information resulting from application experience, will be made using the same process used to develop the original Management Recommendations and Survey Protocols. Changes to Management Recommendations, Survey Protocols, and the Strategic Survey Plan constitute administrative changes to the technical details of specific site management and surveys and it is not anticipated such changes will require any further NEPA documentation.

Adding, Removing, and Changing Species Between Categories

The criteria and evaluation process for species that is presented in Appendix F, used in this SEIS, and proposed for use in future adaptive management changes is designed to continue approximately the same level of assurance of persistence as intended by the theme of this alternative. The process and results should be relatively consistent over time because the assumptions, criteria, and logic used in reaching determinations relating to species disposition under the Survey and Manage Standards and Guidelines will remain constant. Proposed changes to assignments of species to categories and proposals to remove species from Survey and Manage, resulting from the periodic evaluations of new information, will be forwarded to the RIEC for review to ensure that current information about the species has been appropriately considered and weighed against the stated criteria and that the resultant proposal continues to provide at least the level of protection intended by the standards and guidelines. Adaptive management changes to assignments of species will be jointly adopted by the Forest Service and BLM and included in the annual report, along with a summary of the information supporting the changes. Since the effects to species are expected to be consistent with the effects anticipated and described in this document, it is not anticipated such changes will require regular, annual NEPA documentation. The parameters for making adaptive changes are part of the standards and guidelines and, as long as the changes are within these parameters, they would not constitute a change in this decision or constitute new information on effects not already anticipated and addressed in this SEIS. Prior to the annual application of results, the Agencies will examine whether the magnitude and nature of changes indicate a need for additional environmental analysis (e.g., an Environmental Assessment). The results of this examination will be documented in a Findings of Administrative Review document and summarized in the Annual Report. It is not anticipated that changes made pursuant to the species review process will require regular, annual NEPA documentation for three major reasons. First, the parameters for making such changes are clearly delineated and part of the standards and guidelines of theproposed action. Second, adjustments made pursuant to the annual species review process are fully expected to occur and are included in the set of assumptions on which the effects analyses of this FSEIS have been made. Third, the status of species relative to the standards and guidelines should remain consistent with, and at least as secure as, that reflected in this FSEIS, given that the criteria guiding the species review process have been designed in large measure to achieve such consistency. The agencies will evaluate such changes over time to ensure their application is having the intended result and their accumulated effects are within the scope anticipated by this SEIS. At some point in the future, if such effects rise to the level exceeding that scope, supplemental NEPA analysis can be expected to be conducted at appropriate intervals as necessary or advisable.

The Agencies will involve the public and keep resultant changes and their application visible to the public so potential concerns about application of the above criteria to any particular species or area may be surfaced. First, the Agencies will utilize a data call, open conference, or other method of soliciting appropriate new information about Survey and Manage species. Second, the annual report will be sent to individuals or groups who request it. Individuals and groups that would like to receive the annual report should write to the Interagency Survey and Manage Program Manager, c/o Regional Ecosystem Office, P.O. Box 3623, Portland, OR 97208-3623. Public comments

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about species changes or anything else in the annual report are invited at any time and should also be addressed to the Program Manager. Third, Agency NEPA documents for future habitat-disturbing activities will identify if any future changes in categories have been applied to the planned activity or will reference a specific years assignments, as documented in the annual report, that appropriately applies to that activity or project. Specific public concerns about the application of a particular species assignment may be directed toward the activity applying the new assignment.

Protection Buffers

The management direction for Protection Buffers is the same as described for Alternative 1.

Manage Recreation Areas to Minimize Disturbance to Species

The management direction for recreation areas is the same as described for Alternative 1.

Protect Sites From Grazing

The management direction for grazing is the same as described for Alternative 1.

Provide Additional Protection for Caves, Mines, and Abandoned Wooden Bridges and Buildings That are Used as Roost Sites for Bats

The management direction for bats is the same as described for Alternative 1.

Alternative 3

Introduction

Alternative 3 builds on Alternative 1 by adding 250-meter buffers around occupied sites of rare species, adds equivalent-effort surveys for species where pre-disturbance surveys are not considered practical, and adds management of known site for uncommon, status undetermined species. Building on the species classifications of Alternative 1, Alternative 3 redefines Survey and Manage into three categories (3A, 3B, and 3C), based on relative rarity and the level of information known about the species or group of species as shown below.

Alternative 3 - Adds Equivalent-Effort Surveys and 250-Meter Rare Site Buffers			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category 3A** - 301 species Manage All Known Sites with 250-Meter Buffers ----------> Pre-Disturbance Surveys Equivalent-Effort Surveys ----------> Strategic Surveys ---------->		
Uncommon	**Category 3B** - 24 species[1] Manage High-Priority Sites ----------> Pre-Disturbance Surveys Equivalent-Effort Surveys > Strategic Surveys ---------->		**Category 3C** - 21 species 1. Manage All Known Sites 2. N/A 3. Strategic Surveys

[1] Includes three species with surveys not necessary.

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The three categories make it easier to clarify species objectives and apply specific management direction, as compared to the No-Action Alternative, partly because Alternative 3 assigns each species to only one category. The standards and guidelines of Alternative 3 describe the objective, assignment criteria, and management direction for each category.

Like Alternatives 1 and 2, Alternative 3 combines most standards and guidelines for Protection Buffer and Protect Sites From Grazing into Survey and Manage, and edits and moves the remaining standards and guidelines for Protection Buffers and those for Additional Protection for Bats to "Standards and Guidelines Common to All Land Allocations." Protection Buffers or Protect Sites From Grazing species proposed for inclusion in Survey and Manage are included on Table 2-2 located at the end of this chapter. Alternative 3 proposes removing 63 species from the Survey and Manage and related standards and guidelines (see Table 2-4), and removing 9 species for part of their range (see Table 2-5). The reason for proposing these species removals is that new information or re-examination of existing information indicates the species do not meet the Survey and Manage basic criteria. Changes in the level of management between Alternative 3 and the No-Action Alternative are summarized by taxa group on Table 2-10.

Similar to Alternatives 1 and 2, Alternative 3 includes an adaptive management section defining how to change species among the three categories and how to add or remove species from Survey and Manage in response to new information.

The section in this chapter entitled Provisions Common to Alternatives 1, 2, and 3 is incorporated as part of the standards and guidelines for Alternative 3.

Survey and Manage

These standards and guidelines apply within all land allocations; however, the Survey and Manage provision for each species will be directed to the range (or portion of range) of that species, to the particular habitats where concerns exist for its persistence, and to the managementactivities considered "habitat-disturbing" for that species. The Survey and Manage Standards and Guidelines will benefit species closely associated with late-successional and old-growth forests including certain amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod groups. Information concerning these species that is acquired through application of these standards and guidelines should facilitate project planning, adaptive management changes, and adjustments to these provisions.

Table 2-2 (Species to be Protected Through Survey and Manage for All Alternatives), located at the end of this chapter, shows which species are addressed in the Survey and Manage provision and the assignment of these species into the three categories (3A, 3B, and 3C, described below).

Description of Categories

The following text describes the three categories in Alternative 3. These alternatives are referenced as 3A, 3B, and 3C, to link the categories to Alternative 3. The category discussions include additional information that clarifies the linkage between objectives and management actions of each category and describes the criteria for assigning species to the various categories. A taxon, or range-defined portion of a taxon, can be assigned to only one category.

Category 3A (Rare)

The species assigned to this category are those assigned to Categories 1A, 1B, and 1E in Alternative 1. The objectives and management direction, however, are different in this alternative.

Objective: Manage all known sites, minimize inadvertent loss of undiscovered sites, and learn more about the species to better determine how it should be managed and to which category it should be assigned.

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Criteria for assigning a species to Category 3A are:

- The species is rare, and all known sites or population areas are likely to be necessary to provide reasonable assurance of species persistence, as indicated by one or more of the following:
  – Low number of likely extant sites/records on federal lands indicates rarity.
  – Species poorly distributed within its range or habitat.
  – Limited number of individuals per site.
  – Highly specialized habitat requirements (narrow ecological amplitude).
  – Dispersal capability limited relative to federal habitat.
  – Microsite habitat limited.
  – Reproduction or survival not sufficient.
  – Low number of sites in reserves or low likelihood of sites or habitat in reserves.
  – Habitat fragmentation that causes genetic isolation.
  – Factors beyond management under the Northwest Forest Plan affect persistence, but special management under the Northwest Forest Plan will help persistence.
  – Declining habitat trend.

or

- The species is rare, and the number of likely extant sites/records and survey information on federal lands indicates possible rarity of the species; and
- Information is insufficient to determine whether Survey and Manage basic criteria are met or to determine what management is needed for a reasonable assurance of species persistence.

Management Direction:

Manage All Known Sites. The size of the area to be managed will include the occupied site and all stands within 250 meters, regardless of age. Management Recommendations, when prepared, will identify the appropriate management of the site, but will not reduce the size. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Surveys Prior to Habitat-Disturbing Activities. Surveys will be conducted at the project level, prior to habitat-disturbing activities, and in accordance with Survey Protocols. Species sites found as a result of these surveys will be managed as known sites. For species for which pre-disturbance surveys are not practical or information status is undetermined, equivalent-effort surveys are required.

Strategic Surveys. The objective of strategic surveys in this category is to find the most important habitat for the species and to determine the ability of reserves to provide for a reasonable assurance of species persistence. Priority focus is in reserves for species that are widely distributed and in highest-likelihood habitat for more endemic species.

Strategic Surveys may address one or more of the following:

- What is the distribution of the species relative to land allocations established in the Northwest Forest Plan?
- Are known sites still extant?
- What is the habitat of the species?
- Identify high-probability habitat for surveys to find new sites.
- What is the status of the population (such as number of individuals and size)?

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- Where else does the species occur? Find new sites.
- Collect habitat information to assist with managing the species.

Strategic surveys build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these surveys will be managed as known sites.

Category 3B (Uncommon)

The species assigned to this category are those assigned to Categories 1C and 1D in Alternative 1. The objectives and management direction, however, are different in this alternative.

Objective: Identify and manage high-priority sites to provide for reasonable assurance of species persistence. Until high-priority sites can be determined, manage all known sites.

Criteria for assigning a species to Category 3B are:

- The species is uncommon, and not all known sites or population areas are likely to be necessary for reasonable assurance of persistence of the species as indicated by one or more of the following:
  – A higher number of likely extant sites/records does not indicate rarity of the species.
  – May have low-to-high number of individuals per site.
  – Less restricted distribution pattern relative to range or potential habitat.
  – Moderate-to-broad ecological amplitude.
  – Moderate-to-high likelihood of sites in reserves.

Some species placed in this category have a sufficient number of sites known to meet species objectives, and either Management Recommendations need to be written to define high-priority sites, or additional surveys in reserves or other areas are needed to confirm future removal from Survey and Manage. These species are specifically identified on Table 2-2. Pre-disturbance surveys are not needed for these species.

Management Direction:

Manage High-Priority Sites. High-priority sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations. Until a Management Recommendation is written addressing high-priority sites, either assume all sites are high priority, or local determination (and project NEPA documentation) of non-high priority sites may be made on a case-by-case basis with: (1) guidance from the Interagency Survey and Manage Program Manager; (2) local interagency concurrence (FS, BLM, FWS); (3) documented consideration of the condition of the species on other administrative units as identified by the Program Manager - typically adjacent units as well as others in the species range within the province; and, (4) identification in ISMS. The Survey and Manage Program Manager will involve appropriate taxa specialists.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional high-priority sites not needed for persistence. These exceptions will be reviewed by the REO.

Survey Prior to Habitat-Disturbing Activities. Surveys will be conducted at the project level, prior to habitat-disturbing activities, and in accordance with Survey Protocols. Sites found as a result of these surveys will be managed as described above under manage high-priority sites. For species for which pre-disturbance surveys are not practical, equivalent-effort surveys are required. Management Recommendations or Survey Protocols may specify habitats or conditions (e.g. seral stages) not needing surveys because high-priority sites are not expected to be found there.

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Pre-disturbance surveys are not required for occasional species placed in this category but identified as surveys not necessary (see Table 2-2 and discussion under Introduction to the Action Alternatives earlier in this chapter).

Strategic Surveys. The objective of strategic surveys in this category is to gather information to either develop or revise Management Recommendations, which will include identifying high-priority sites for management and how to manage to provide for a reasonable assurance of species persistence. These surveys will build upon and incorporate information from previous and ongoing surveys. Sites found as a result of these surveys will be managed as described above under manage high-priority sites.

Strategic Surveys may address one or more of the following:

- What is the quality of the known sites (such as habitat characteristics, longevity and continuity of habitat, and the status and characteristics of the population)?
- What is the geographic distribution of sites and extent of the range of species within the Northwest Forest Plan area (such as distribution of sites in the Northwest Forest Plan reserve allocations and the connectivity of known sites, both spatially and temporally)?
- Where does the species occur? Find new high-priority sites.
- Obtain information on habitat requirements to help manage known sites (e.g., developing Management Recommendations and identifying high-priority sites).

Category 3C (Uncommon or Concern for Persistence Unknown, Status Undetermined)

The objective, criteria, and species assigned to this category are the same as for Category 1F in Alternative 1. The management direction, however, is different.

Objective: Determine if the species meets the basic criteria for Survey and Manage and, if so, to which category (3A or 3B) it should be assigned.

Criteria for assigning a species to Category 3C are:

- The species is uncommon and the number of likely extant sites/records and survey information does not indicate rarity, and:
- Information is insufficient to determine whether Survey and Manage basic criteria (including whether there is a concern for persistence) are met or to determine which management is needed for species persistence.

Management Direction:

Manage All Known Sites. Current and future known sites (except arthropods) will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a), and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations.

Professional judgment, coupled with locally specific information and advice from taxa specialists about the species, may be used to identify occasional sites not needed for persistence. These exceptions will be reviewed by the REO.

Strategic Surveys. The objective of strategic surveys in this category is to collect enough information to determine if the species meets the basic criteria for Survey and Manage, and to either place the species into the appropriate Survey and Manage category or to remove it from Survey and Manage. In cases where the strategic survey indicates that a species is potentially still rare, but the species is not closely associated with late-successional or old-growth forests, the species will be removed from Survey and Manage and considered for the Agencies' special status species programs.

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These surveys will build upon and incorporate information from previous and ongoing surveys. Species sites found as a result of these surveys will be managed as known sites.

Strategic Surveys may address one or more of the following:

- Is the species closely associated with late-successional and old-growth forests?
- Does the species occur within the Northwest Forest Plan area?
- What is the appropriate management for the species?
  – Does the species meet the basic criteria for Survey and Manage?
  – What is the appropriate Survey and Manage category?
- What is the level of concern for persistence?

Adaptive Management

The management direction for Adaptive Management is the same as described for Alternative 1.

Protection Buffers

The management direction for Protection Buffers is the same as described for Alternative 1.

Manage Recreation Areas to Minimize Disturbance to Species

The management direction for recreation areas is the same as described for Alternative 1.

Protect Sites From Grazing

The management direction for grazing is the same as described for Alternative 1.

Provide Additional Protection for Caves, Mines, and Abandoned Wooden Bridges and Buildings That are Used as Roost Sites for Bats

The management direction for bats is the same as described for Alternative 1.

Alternatives Considered But Eliminated From Detailed Study

An environmental impact statement must rigorously explore and objectively evaluate all reasonable alternatives. The range of alternatives is limited by the requirement to fulfill the Purpose and Need to which the Agencies are responding in proposing the alternatives.

Many of the alternatives considered by the interdisciplinary team were eliminated from detailed study in attempts to find reasonable alternatives that would fulfill the Underlying Need for the Proposed Action and the Purpose of this SEIS (referred to simply as the Purpose and Need). The Purpose and Need, as described in Chapter 1, is to better identify management needed, clarify language, eliminate inconsistent and redundant direction, and establish a process responsive to new information for the Survey and Manage and related mitigation measures, while continuing to meet the underlying needs of the Northwest Forest Plan. The Purpose and Need substantially limited the range of reasonable alternatives available for analysis and provided a relatively narrow scope for this action. It was not the objective nor intent of this action to re-examine the overall strategy of the Northwest Forest Plan.

Among potential alternatives considered were various strategies proposed by the public during the scoping process, as well as some strategies proposed by Agency staff. Some proposals reflected a desire to make fundamental changes in the Northwest Forest Plan; some proposals were technical in nature, and others were based on broad generalizations. Overall, the interdisciplinary team

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discovered that few strategies were available that would meet the goal of improving Agency and resource program efficiency while continuing to meet the underlying needs of the Northwest Forest Plan. Additional alternatives would have been possible if a broader revision of the Northwest Forest Plan had been the objective of this action; however, no such broad revision was deemed necessary to meet the Purpose and Need.

Alternatives considered but eliminated from detailed study are summarized below.

Focus on Gathering Information About Species and Their Habitat Needs

This alternative would emphasize gathering information through surveys for species and other means, while eliminating the requirement to manage known sites of species. Information gathering would be for the purpose of determining necessary management under existing programs or federal laws. This alternative would not fulfill the Purpose and Need. Not managing known sites in the short term would increase the risk to persistence of species presently believed to be rare or uncommon. While this alternative would better meet the need for maintaining the level of production of goods and services expected in the Northwest Forest Plan in the short-term, it poses an unacceptable risk of long-term impacts should the failure to provide short-term protection of known sites result in a species requiring protection under the Endangered Species Act in the long term. This strategy was analyzed in Appendix J2 of the Northwest Forest Plan Final SEIS (pp. J2-58 through J2-79), and that analysis was used in reaching the conclusion regarding this alternative. The main element of this strategy, strategic surveys, is included in all action alternatives for all species.

Focus on Protection of Known Sites of Species

This alternative would manage all known sites of species, while eliminating the requirement to conduct species surveys. No additional information would be required to be gathered under this alternative. This alternative would not fulfill the Purpose, because the concern for persistence for many of these species, related to uncertainty based on lack of information, would not be addressed. This strategy was analyzed in Appendix J2 of the Northwest Forest Plan Final SEIS (pp. J2-58 through J2-79) and that analysis was used to reach the conclusion regarding this alternative.

Maintain Currently Known Sites While Conducting Strategic Surveys to Determine Best Future Management

This alternative would defer pre-disturbance surveys and rely on completing strategic surveys within a limited timeframe to determine which species need additional management. This approach would expedite the timeframe for the Agencies in gathering general knowledge about species and could result in some species being removed from Survey and Manage, while improving management of others based on better information. Under this alternative, undiscovered sites of rare species could be at risk in the short term. Alternative 2 in this SEIS examines such a strategy for species in the uncommon category, and such an emphasis could be considered for other species in the future if that strategy worked well. The effects section in this SEIS indicates two vertebrates and eight mollusk species do not meet persistence objectives with Alternative 2. This strategy was not considered for species placed in the rare category under the action alternatives, because of the likelihood of creating a concern for persistence for many more species.

Change Distribution and Strategy of Reserves

This alternative would eliminate the standards and guidelines for Survey and Manage and Protection Buffers. It would redesign the reserve system, giving greater protection for small, isolated stands of old-growth forests and providing greater distribution of reserves. Because of the extent that this proposal intends to alter the reserve system, it was assumed for this analysis that the large blocks of reserves would be made smaller so that the reserves could be more evenly

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distributed across the landscape. Such a strategy does not meet the Purpose because it would no longer be a mitigation measure for Alternative 9 of the Northwest Forest Plan Final SEIS, but a new alternative.

Prohibit Harvest of Late-Successional and Old-Growth Forests

This alternative would eliminate the standards and guidelines for Survey and Manage and Protection Buffers and also prohibit harvest of late-successional and old-growth forests on federally-managed lands. Prohibiting the harvest of late-successional and old-growth forests would not fulfill the Underlying Need because needs described in the Northwest Forest Plan concerning development, extraction, and use of other forest resources would not be met. In addition, Survey and Manage is a mitigation measure, and such an alternative would, in effect, mitigate Alternative 9 to look like Alternative 1 in the Northwest Forest Plan Final SEIS. Such an alternative is outside the range of alternatives considered in this SEIS, and there is nothing in the Underlying Need section for this SEIS indicating such an alternative would be appropriate. The Underlying Need that compelled this SEIS was not so much that these species were not sufficiently protected, but was primarily that the measures were more costly, inefficient, and inflexible than anticipated.

Do Not Harvest Old Growth, and Remove the Survey and Manage Mitigation Measure

Approximately 40 percent of the 1.1 million acres of late-successional forests available for timber harvest is old growth. This alternative proposes to prohibit harvest in this 40 percent and eliminate the Survey and Manage Standards and Guidelines. This alternative would respond to two of the issues by eliminating Survey and Manage costs and eliminating confusing and conflicting direction. This alternative would increase risk for species that may be rare and localized within an area of late-successional (but not old-growth) forest, although it is unknown whether the level of risk would be quantifiable or would meet Northwest Forest Plan species objectives or legal requirements. This alternative would not meet the issue of keeping the level of effects to other resource management activities near levels intended in the Northwest Forest Plan. It is estimated this alternative would reduce PSQ 40 to 45 percent from the currently declared PSQ of 811 MMBF.

Eliminate Survey and Manage and Provide Additional Mitigation in the Matrix Land Allocation

This alternative would eliminate the standards and guidelines for Survey and Manage and Protection Buffers and, in lieu, have a strategy based on maintaining habitat elements. This strategy would increase the requirements for retaining green trees, coarse woody debris, and snags in the Matrix land allocation. This alternative would not fulfill the Purpose and Need, because it would not adequately provide short-term management of known sites for species, thereby increasing the likelihood of not meeting persistence objectives. In addition, this alternative would not address the risk or concern for persistence for many species related to lack of information. The analysis in Appendix J2 of the Northwest Forest Plan Final SEIS (USDA, USDI 1994a, pp. J2-19, and J2-58 through J2-79) already considered increases in green tree and coarse wood, and these measures were adopted as mitigation measures in the Northwest Forest Plan. There is no information in that analysis or elsewhere that indicates these elements are insufficient or limiting for most Survey and Manage species.

Strengthen the Late-Successional Elements and Connectivity in the Matrix Land Allocation

This alternative would eliminate the standards and guidelines for Survey and Manage and Protection Buffers. In lieu, this alternative proposes a strategy that would focus on strengthening biological connectivity among reserves by prohibiting harvest of late-successional forest in the Matrix land allocation, significantly increasing the level of green tree retention in harvest units, and lengthening harvest rotations. This strategy increases emphasis on biological connectivity to protect the genetic diversity of species. Prohibiting harvest of late-successional forests would not

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fulfill the Need because the balance of effects anticipated in the Northwest Forest Plan concerning development, extraction, and use of other forest resources would not be met.

Further, Alternative 1 in the Northwest Forest Plan Final SEIS (USDA, USDI 1994a) examined the strategy of prohibiting harvest of late-successional forest. In addition, this alternative would not fulfill the Purpose and Need, because it would not address the lack of information related to risk or concern for persistence for many isolated species. The analyses in Appendix J2 of the Northwest Forest Plan Final SEIS (USDA, USDI 1994a, p. J2-15 and others) were reviewed in reaching these conclusions.

Protect Species Only Through the Agencies' Special Status Species Lists or Through the Endangered Species Act

This alternative would eliminate the standards and guidelines for Survey and Manage and Protection Buffers in lieu of a strategy that would manage species known to be at risk through the Agencies' special status species programs and through the existing Endangered Species Act requirements.

The existing requirements for sensitive/special status species and the Endangered Species Act were considered in the Northwest Forest Plan Final SEIS when adopting the mitigation measures for Survey and Manage and Protection Buffers to meet species persistence objectives. There were concerns that such a strategy would not address risks or concerns for persistence that are based on incomplete information. A considerable degree of uncertainty exists regarding these species based on incomplete information and this proposal did not address the need to gain additional information through strategic surveys. Additionally, it is the policy of the BLM and the Forest Service to manage for species to avoid the need for listing under the Endangered Species Act.

However, use of the Agencies' special status species programs is an important component of Alternative 2. For the 45 uncommon species, strategic surveys will be completed within 5 years; species for which there is still a concern for persistence will be assigned to the special status species programs. If successful, this strategy could be considered for other Survey and Manage species in the future.

Rely on the National Forest Management Act "Viability" Provision to Protect Species

This alternative would remove all but vertebrate species from the Survey and Manage and Protection Buffer Standards and Guidelines. In addition, this alternative would not apply these standards and guidelines to BLM administered lands. The National Forest Management Act regulations provide that "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area" (36 CFR 219.19).

This strategy would attempt to maintain stable, well-distributed populations only of vertebrate species, and only on lands administered by the Forest Service. This alternative would not meet an underlying need of the Northwest Forest Plan for "...habitat that will support populations of native species...," because it would eliminate the Survey and Manage mitigation measure for species located on BLM administered lands, and eliminate the measure for all but vertebrates on National Forest System lands. Questions about application of the National Forest Management Act regulation concerning viability were addressed in the Northwest Forest Plan Final SEIS in response to public comments and addressed by the court decision on the Northwest Forest Plan (Seattle Audubon Society v. Lyons 871 F. Supp. 1291 (W.D. Wash. 1994)).

Vary Individual Management of the Hundreds of Survey and Manage Species

This strategy would attempt to create individualized management for the hundreds of Survey and Manage species to minimize impacts to other programs and to maximize benefits to species. Hundreds of variations of management strategies would be possible. This strategy could also create many combinations of various strategies for groups of species. If this alternative were

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approached by writing standards and guidelines tailored to each species, it would likely be so complex as to fail to meet the Underlying Need for the Proposed Action by not reducing conflicts and overlap in management strategy, not adding clarity to management direction, and not reducing unreasonably high costs. It would also be more difficult for such a strategy to respond to new information about species. The objectives of such a strategy are met in the action alternatives, which provide for individual Management Recommendations written by taxa experts and managers and reviewed by the REO.

Maintain the PSQ Levels projected in the 1994 Northwest Forest Plan FSEIS

This strategy seeks to maintain the PSQ at the level identified in the 1994 Northwest Forest Plan Final SEIS. As described in the Timber Harvest section in Chapter 3&4, the 1994 Northwest Forest Plan Final SEIS estimated a Probable Sale Quantity of 958 MMBF annual programed timber harvest, and another 10 percent as "other wood", rounded to 1.1 billion board feet. However, the 1994 ROD anticipated potential changes in the PSQ. In addition to the uncertainty of Survey and Manage effects (USDA, USDI 1994a, p. 3&4-267), and the understanding that PSQ was a "rough approximation" (USDA, USDI 1994b, p. 19), the ROD indicated the annual allowable sale quantity "...for National Forests and BLM districts without approved management plans will be recalculated when the respective plans are adopted" (USDA, USDI 1994b, p. 12). Adoption of those plans in 1994 and 1995 through appropriate EISs and Records of Decisionsresulted in a total PSQ of 868 MMBF. In 1998, six National Forests in Region 6 reduced their PSQ by 57 MMBF based on refinement of calculations and data used for the 1994 Final SEIS. These changes have resulted in a current declared PSQ of 811 MMBF. The majority of the reduction from 958 MMBF is based on a more detailed calculation of riparian reserves. These decisions precede this SEIS. Therefore, the PSQ level projected in the 1994 Final SEIS could not be achieved even by eliminating the Survey and Manage standards and guidelines. To describe an alternative that would meet the 958 MMBF level of the Northwest Forest Plan would require a re-mix of land allocations or other fundamental reconsideration of the Northwest Forest Plan well beyond the scope of the Purpose and Need.

Maintain the 811 MMBF PSQ Level in the Current Forest and District Land and Resource Management Plans

This strategy would limit Survey and Manage known site acreage to the level identified in the 1994 Northwest Forest Plan Final SEIS. Sites of Survey and Manage species known by the Agencies in 1994 reduced PSQ approximately 6 MMBF, but this was by no means identified as a final effect. In addition to the understanding that PSQ was a "rough approximation" (USDA, USDI 1994b, p. 19), the 1994 Final SEIS indicated Survey and Manage standards and guidelines "add to the uncertainty of PSQ calculations" (USDA, USDI 1994a, p. 3&4-267). Alternatives 1 and 2 of this SEIS are estimated to achieve 94 and 96 percent of the declared PSQ level, respectively, well within the "rough approximation" and "uncertainty" parameters described above.

Continue Judge Dwyer's Ruling that the Existing Northwest Forest Plan Standards and Guidelines Apply the Pre-disturbance Survey Requirement when Actual Habitat-Disturbing Activity Starts, and that the Agencies Cannot Exempt Some Suitable Habitats From Pre-Disturbance Surveys

The Agencies' planning processes follow that described in the CEQ regulations for implementing the National Environmental Policy Act (NEPA). Basically, this includes a detailed and complete information gathering and documentation step, followed by an agency official making an informed decision. Actions subsequent to that decision, whether marking trees, completing final surveys, preparing and offering a contract, and conducting the actual work, could be substantially disrupted by continuing to conduct pre-disturbance surveys. To survey up to the actual moment of habitat disturbance would, in this case, require the decision-maker to continue to gather information after they were required by law to "make an informed decision," and into the period public funds are being expended to in the conduct of that decision. Such an interpretation extends beyond actual

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contract award, subjecting the Agencies to the uncertainties and high costs of contract modifications or providing for replacement volume. An alternative approach, used in the action alternatives in this SEIS, is to clearly describe that such surveys are needed before the NEPA decision or decision document, and for authors of the standards and guidelines and of the effects sections to recognize this point and write accordingly.

Regarding not exempting some suitable habitats from surveys, it would be an unreasonable use of public funds to survey habitats where the best science indicates there is no concern, or where there is a low likelihood of finding an occupied site that is important to meeting the overall persistence objectives for the species. While the Agencies had assumed this was a reasonable interpretation, the point is not articulated in the Northwest Forest Plan Standards and Guidelines. Therefore, the standards and guidelines of the action alternatives in this SEIS specify that when specialists and managers prepare species-specific Management Recommendations or Survey Protocols, they should identify habitats or conditions where there is not a concern for persistence or where potential sites are likely unviable or otherwise not important to meeting overall persistence objectives, and exclude them from the requirement to survey prior to habitat-disturbing activities.

Make Minor Adjustments to the Existing No-Action Alternative as Apparently Intended in the Existing Standards and Guidelines

The existing standards and guidelines clearly specify species should be moved from one category to another, or removed from Survey and Manage "...any species who status is determined to be more secure than originally projected" (USDA, USDI 1994b, p. C-6). Consideration was given to responding to the shortcomings of the No-Action Alternative under the stated intentions and authority of the standards and guidelines of the existing Northwest Forest Plan Record of Decision. Attempts to rectify these shortcomings outside of the NEPA process proved infeasible due to the lack of a clear process that would allow this without further review. Addressing these shortcomings under full NEPA analysis results in this SEIS process currently underway.

Attempts to only slightly modify the No-Action Alternative resulted in alternatives very close to Alternative 1. Species categories were the only substantial difference between such alternatives and Alternative 1. Since this would not significantly add to the range of alternatives considered in this SEIS, these alternatives were dropped from detailed consideration.

Defers Harvest of Old Growth Until Strategic Surveys Are Completed

Approximately 40 percent of the 1.1 million acres of late-successional forests available for timber harvest is old growth. This alternative would defer harvests in this old growth for approximately 5 years until strategic surveys were completed, in order to find sites and determine long-term management of species before any more old-growth habitat is harvested. Harvests would be directed at mature or second-growth stands for 5 years to maintain harvest levels. Since many Survey and Manage species occupy both old-growth and mature stands and this alternative would simply transfer impacts to mature stands, potential effects to species sites would likely be improved only slightly. Nothing in the species effects chapter in this SEIS suggests such a need. Sale design, however, would require spreading out units to lower-priority harvest units, only to return to released areas later in the decade, thereby increasing costs for planning, maintenance of road systems, and other area-related activities.

Do Not Harvest Old Growth but Mitigate for the Loss of Production by Relying on More Management of Second-Growth Stands

This alternative would eliminate harvest in old-growth forests and would increase management of second and third-growth forests in Late-Successional Reserves to maintain the Northwest Forest Plan balance of species protection and harvest levels. Since thinning and eventual regeneration harvest of second-growth stands in the Matrix is already calculated as part of the PSQ, this alternative would rely on increased harvest of second-growth stands in reserves. The system of

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Late-Successional Reserves was designed to provide large blocks of late-successional forests in the long term. Even Alternative 1 in the Northwest Forest Plan Final SEIS, which reserved essentially all stands over 80 years, still included large Late-Successional Reserves because of the long-term benefits of unfragmented large blocks. Other alternatives retained the reserves and released various late-successional and old-growth areas, those not contributing to the system of reserves, for harvest. The long-term fragmentation of the reserves that would result from this alternative would reduce protection of some species benefitting from large reserves.

Comparison of the Effects of the Alternatives

The following discussion summarizes the environmental consequences disclosed in detail in Chapter 3&4. The environmental consequences of the four alternatives vary as a result of differences in the management of sites and surveys for these species. Anticipated effects outcomes for all species currently under Survey and Manage are summarized below and presented in Table 2-12, located at the end of this chapter. Table 2-13, located at the end of this section, summarizes anticipated effects for major analyses conducted in Chapter 3&4, including a summary of outcomes by taxa for species that would remain under Survey and Manage in the action alternatives. Table 2-14, also located at the end of this section, describes in detail the reasons why some species have outcomes that vary by alternative.

Aquatic Ecosystem

The Northwest Forest Plan was designed to protect streams, lakes, and wetlands within the range of the northern spotted owl. The Aquatic Conservation Strategy is a habitat-based approach developed to restore and maintain ecological health of watersheds and the aquatic ecosystems contained within them on federally managed lands. The four major components of the Aquatic Conservation Strategy (Riparian Reserves, Key Watersheds, Watershed Analysis, and Watershed Restoration) provide the basis for protecting flora and fauna that are associated with aquatic or riparian habitats. None of the alternatives change any component of the Aquatic Conservation Strategy.

The Survey and Manage elements (manage known sites, manage high-priority sites, etc.) include measures to reduce the risk to species at the site scale. The amount of acreage at these sites is expected to be small and any benefits toward restoring aquatic ecosystems that may be provided by managing known sites are expected to be negligible.

The Survey and Manage Standards and Guidelines also provide a mechanism to collect additional information (such as through strategic surveys or extensive and general regional surveys) to develop and refine species-specific Management Recommendations. This provision allows management of species in isolated habitats that will supplement the protection provided by the Aquatic Conservation Strategy.

Forest Ecosystem

The Northwest Forest Plan utilizes an ecosystem approach to land management to provide habitat for late-successional and old-growth forest associated species. It features a functional, interconnected network of late-successional and old-growth reserves. It also includes provisions for dispersal (short term) and movement (long term) between reserves, that maintain essential processes for selection, adaptation, and evolution. The processes of succession and disturbance are expected to create diverse landscape patterns across the Northwest Forest Plan area.

The species-specific strategy of the Survey and Manage Standards and Guidelines may sometimes conflict with the overall management strategy of the Northwest Forest. Short-term objectives to maintain species persistence in the absence of information about these rare or uncommon species may require a cautious approach to the application of management and restoration activities

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otherwise designed to promote long-term ecosystem recovery and function. One example of this potential conflict is the use of prescribed fire to restore ecological functions to fire-associated forests in southern Oregon and northern California. Also, there may be situations where species under Survey and Manage Standards and Guidelines depend on habitat that is a result of excluding fire from the ecosystem.

In the long term, no significant cumulative change is anticipated in the overall functioning of succession or disturbance as a result of implementing the proposed action or any other action alternative. The Northwest Forest Plan Final SEIS concluded that the acres associated with Survey and Manage and related mitigation measures would have a relatively minor effect on the maintenance of a functional and interconnected late-successional forest ecosystem. Although the number of acres associated with Survey and Manage Standards and Guidelines is greater than was anticipated in the Northwest Forest Plan (tens of thousands of acres), their effects are not significant in relation to the approximately 20 million acres (81 percent of the federal lands) managed as reserves. Changes to these Survey and Manage and related mitigation measures are not anticipated to change these conclusions.

Air Quality, Water Quality, and Soil Productivity

The Northwest Forest Plan Standards and Guidelines for air quality, water quality, and soil productivity have begun to improve the general ecosystem health as well as improving management of habitat for late-successional and old-growth forest related species. Air quality is managed by adhering to state requirements (Clean Air Act). Water quality is managed or restored through activities identified in watershed analysis, Water Quality Recovery Plans (Clean Water Act), and/or consultation with the U.S. Fish and Wildlife Service or the NationalMarine Fisheries Service. Soil quality is managed through the Agencies' standards, following Best Management Practices as prescribed by the Clean Water Act, and implementing the Northwest Forest Plan and its Aquatic Conservation Strategy.

In the short term, the requirements for surveys and management of known sites under all alternatives would have the potential to delay or eliminate some management activities that would otherwise benefit air, water, or soil resources. Those actions that could be affected include subsoiling, fuel treatment, upland watershed restoration, and riparian restoration treatments. In the long term, under all alternatives, these conflicts are expected to be reduced or resolved through the use of increased knowledge. The effects of the potential conflicts of Survey and Manage Standards and Guidelines with management activities that would benefit air, water, or soil resources would be minor in the short term and inconsequential in the long term; this effect is based on the relatively small amount of acres (tens of thousands) associated with Survey and Manage, compared to the total 24.5 million acres of federally managed lands within the Northwest Forest Plan area.

Wildland and Prescribed Fire

Fire plays an important role in maintaining the ecosystems of the Eastern Cascades of Washington and Oregon, the California Cascades, and the California and Oregon Klamath Physiographic Provinces. Fire also played a role in establishing the mosaic of conditions in the Douglas-fir forests in the Oregon Coast Range Physiographic Province.

The alternatives vary in the number of acres available, on an annual basis, for prescribed fire and other fuel reduction treatments. Acres available for prescribed fire were projected for each alternative. Costs were also projected based on the amount of area that would require surveys. These projections include reductions for manage known site acres.

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Relative number of acres available for prescribed fire treatment on an annual basis.

	No-Action	Alternative 1	Alternative 2	Alternative 3
Acres of pre-disturbance surveys	154,000	120,000	118,000	161,000
Acres available for prescribed fire*	78,500	103,000	103,400	95,200
Cost ($) of survey per acre	439	64	48	171
Cost ($) per acre treated	862	74	55	289

*Does not include acres of wildland fire use.

Bryophytes

Bryophytes include hornworts, liverworts, and mosses. The No-Action Alternative applied the Survey and Manage Standards and Guidelines to 23 bryophyte species, and the Protection Buffer Standards and Guidelines to 8 bryophytes. There are a total of 27 bryophytes considered under these standards and guidelines; some species are included under both Survey and Manage and Protection Buffer Standards and Guidelines. Under the action alternatives, 11 species ofbryophytes are proposed to be removed from these standards and guidelines in all (10 species) or part (1 species) of their range.

For the 11 bryophytes that would be removed from the Survey and Manage Standards and Guidelines across all or portions of their ranges, 5 would have sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to their reference distribution, 1 would have sufficient habitat (including known sites) to allow the species to stabilize in a pattern different from its reference distribution, 4 would have inadequate habitat (including known sites) for species maintenance, and for 1 species there is insufficient information to determine stability and distribution.

Four of the 11 species would be removed from the Survey and Manage Standards and Guidelines under the action alternatives because they do not meet the basic criterion of being closely associated with late-successional or old-growth forest. These four species (*Bartramiopsis lescurii, Herbertus sakuraii, Plagiochila semidecurrens, and Radula brunnea*) would be at risk for not maintaining a stable population primarily because all except one known site for these four species are located on nonfederal lands and are not closely associated with late-successional or old-growth forest. However, these four species are being considered for the Agencies' special status species programs.

Compared to the No-Action Alternative, the 17 species (including 1 in a portion of its range) proposed to remain on Survey and Manage would receive different management under the action alternatives as a result of applying new information and the slightly different emphasis of the alternatives.

For four of the bryophyte species that remain on Survey and Manage, there is a moderate level of uncertainty that all alternatives would provide sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to their reference distributions. For 10 of the other bryophyte species, there is insufficient information to determine how any alternative would affect distribution and stability primarily because there are a low number of sites for these species.

The uncertainty varies by alternative for three of the species (*Diplophyllum albicans, Schistostega pennata, and Buxbaumia viridis*) that would remain under Survey and Manage. While there is moderate level of uncertainty (due to lack of knowledge and only three recent federal sites), the No-Action Alternative and Alternatives 1 and 3 would provide sufficient habitat (including known sites) for *Diplophyllum albicans* to stabilize in a pattern similar to its reference distribution. This

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same conclusion applies to Alternative 2, however, with a high degree of uncertainty because only sites known as of September 30, 1999, would be managed. For *Buxbaumia viridis*, the No-Action Alternative and Alternatives 1 and 3 would provide sufficient habitat (including known sites) to allow *Buxbaumia viridis* to stabilize in a pattern similar to its reference distribution. This same conclusion applies to Alternative 2, however, with a moderate level of uncertainty because only sites known as of September 30, 1999, would be managed. For *Schistostega pennata*, all alternatives would provide sufficient habitat(including known sites) for the species to stabilize in a pattern similar to its reference distribution with a high level of uncertainty in the No-Action Alternative and with a moderate level of uncertainty in the action alternatives. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Fungi

There are 225 fungi included in the Survey and Manage Standards and Guidelines in the No-Action Alternative.

The status of most fungi is either unchanged or changed to provide slightly increased protection under Alternatives 1, 2, and 3 compared to the No-Action Alternative. There are 196 species under Alternative 1, 202 species under Alternative 2, and 209 species under Alternative 3 that would be either unchanged or receive greater protection. Many species of fungi are so rare that some risk to persistence will occur regardless of which alternative is selected. Thirteen species have not been seen in more than 30 years and are probably extirpated within the Northwest Forest Plan area. Ninety-six species of fungi are known from five or fewer sites within the last 30 years and another 61 are known from between 6 and 20 sites within the last 30 years. Populations with low numbers of individuals are inherently unstable and species with few populations and limited distribution have risk to their persistence. There continues to be uncertainty regarding the expected future condition of many of these fungi due to their rarity within the Northwest Forest Plan area. Implementation of strategic surveys under all action alternatives (or extensive or general regional surveys under the No-Action Alternative) would help reduce this uncertainty.

Species for which protection is decreased in the action alternatives compared to the No-Action Alternative include Protection Buffer species that would no longer receive pre-disturbance surveys and species that are removed from the Survey and Manage Standards and Guidelines. Pre-disturbance surveys would no longer be required for seven species under Alternatives 1 and 2, and for two species under Alternative 3.

Under the action alternatives, 16 species would be removed from Survey and Manage Standards and Guidelines because they do not meet the basic criteria for Survey and Manage or they are synonyms of other species. Two other species are removed from the Survey and Manage Standards and Guidelines in part of their range because they do not meet the basic criteria for Survey and Manage in those areas and all alternatives would provide sufficient habitat (including known sites) to allow these species to stabilize in a pattern similar to their reference distributions.

All alternatives would provide sufficient habitat (including known sites) to allow 29 species of fungi to stabilize in a pattern similar to their reference distributions, 28 with a moderate level of uncertainty and 1 with a high level of uncertainty. While there is a moderate level ofuncertainty, all alternatives would provide habitat (including known sites) sufficient to allow five species of fungi to stabilize in a pattern different from their reference distributions.

One hundred and sixty-four (164) species are so rare that there is inadequate habitat (including known sites) to maintain the species under any alternative; 13 with a low level of uncertainty, 139 with a moderate level of uncertainty, and 12 with a high level of uncertainty. Concerns for stability of these species is a function of their rarity and possibly loss of historic habitat and not related to the design or possible implementation of the alternatives. Finally, for 11 species, there is insufficient information to determine how any alternative would affect distribution and stability. However, known sites are managed for these species, strategic surveys will be conducted, and, if

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pre-disturbance surveys are practical, they will be conducted prior to habitat-disturbing activities. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Lichens

Lichens are a conspicuous component of old-growth forest ecosystems where they play an important ecological role. The habitat components important to lichens include live, old-growth trees, decaying wood, riparian zones, and extensive and interconnected late-successional and old-growth forest conditions. Under the No-Action Alternative, the Survey and Manage Standards and Guidelines were applied to 81 lichen species.

Thirty-five species would be removed from Survey and Manage and Protection Buffer Standards and Guidelines under the action alternatives, either in all (32 species) or portions (3 species) of their range, because they no longer meet the three basic criteria for inclusion under the Survey and Manage Standards and Guidelines. For the 35 lichens that are removed from the Survey and Manage Standards and Guidelines, 25 species, including the 3 split range species, are expected to maintain stable populations and be distributed in a pattern similar to their reference distributions on federally managed lands within the Northwest Forest Plan area, with varying levels of uncertainty. While there is a high level of uncertainty for three species, all alternatives would provide inadequate habitat (including known sites) to maintain the species. There is insufficient information regarding seven species to determine how any alternative would affect distribution and stability. Fourteen species of lichen (including the three with inadequate habitat and the seven with insufficient information) are being removed from Survey and Manage because they do not meet the criterion of being closely associated with late-successional or old-growth forest and are being considered for management under the Agencies' special status species programs.

Compared to the No-Action Alternative, 49 species, including the 3 split range species, receive different management under the action alternatives as a result of the application of new information and the slightly different emphasis of the alternatives. Under Alternative 1, pre-disturbance surveys are added for 9 lichens, management of known sites is increased for 23 lichens, and known site management is removed for 1 lichen. There is no change for the number of species receiving strategic surveys under Alternative 1 as compared to the No-ActionAlternative. Under Alternative 2, 30 lichens receive increased known site management; eight of these 30 species receive site management only for sites known of September 30, 1999. Also under Alternative 2, pre-disturbance surveys are added for 8 lichens and known site management is removed for 2 lichens. Under Alternative 3, 29 lichens receive increased known site management and pre-disturbance surveys are added for 39 lichens.

Most of the lichens have an equal or greater likelihood of meeting stability and persistence objectives under the action alternatives when compared to the No-Action Alternative.

Of the 49 lichens remaining under Survey and Manage, four species were split for analytical purposes due to differences in anticipated effects in different parts of their ranges. This resulted in 53 separate determinations for these 49 species. All alternatives would provide sufficient habitat (including known sites) to allow 15 species to stabilize in a pattern similar to their reference distributions, with various levels of uncertainty. All alternatives would provide habitat (including known sites) sufficient to allow six species to stabilize in a pattern different from their reference distributions, with various levels of uncertainty.

All alternatives would provide inadequate habitat (including known sites) to maintain 12 species, with moderate to high levels of uncertainty. This is primarily due to lack of knowledge regarding these species and their rarity and/or limited habitat or known sites on federally managed land and is not related to the design or possible implementation of the alternatives. There is insufficient information regarding 20 species to determine how any alternative would affect distribution and

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stability. However, known sites are managed for these species, strategic surveys will be conducted, and, if pre-disturbance surveys are practical, they will be conducted prior to habitat-disturbing activities. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Vascular Plants

Vascular plants are those that contain conducting or vascular tissue. They include seed-bearing plants (flowering plants and trees) and spore-bearing plants (ferns, horsetails, and clubmosses). The Survey and Manage Standards and Guidelines apply to 16 vascular plant species under the No-Action Alternative. Six species of vascular plants (four throughout their ranges and two in part of their ranges) would be removed from Survey and Manage in the action alternatives while 12 vascular plants (10 throughout their ranges and 2 in part of their ranges) would remain under Survey and Manage.

Under the action alternatives, four species of vascular plants (*Allotropa virgata, Clintonia andrewsiana, Pedicularis howellii,* and *Scoliopus bigelovii*) would be removed from the Survey and Manage Standards and Guidelines throughout their range and two other species (*Botrychium minganense* in Washington and *Galium kamtschaticum* in the WA Western Cascades, north of Snoqualmie Pass) would be removed from the Survey and Manage Standards and Guidelines in part of their range. These species no longer meet the basic criteria for Survey and Manage Standards and Guidelines in all or part of their range (see Table 2-2 and Table F-2). All six ofthe vascular plants that would be removed from Survey and Manage in all or a part of their range, are expected to have sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to their reference distributions.

Compared to the No-Action Alternative, 12 species would receive different management under the action alternatives as a result of applying new information and the slightly different emphasis of the alternatives. Under Alternatives 1, 2, and 3, strategic surveys would be added for 12 vascular plants. Under Alternatives 2 and 3, one vascular plant would receive increased known site protection. Under Alternative 2, pre-disturbance surveys would be removed for four vascular plants.

Nine of the 12 vascular plant species that remain under the Survey and Manage Standards and Guidelines in all or a part of their range are expected to have sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to their reference distribution under all alternatives. The likelihood of stable populations for these species is greater under Alternatives 1 and 3 as compared to the No-Action Alternative and Alternative 2. All alternatives are expected to provide Eucephalus vialis habitat sufficient (including known sites) to allow the species to stabilize in a pattern different from its reference distribution. The action alternatives would provide *Cypripedium fasciculatum* and *Cypripedium montanum* sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to reference distribution while the No-Action Alternative would provide habitat sufficient (including known sites) for them to stabilize in a pattern different from their reference distribution. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Arthropods

Arthropods are invertebrates with jointed legs, a segmented body, and an exoskeleton (an external supporting covering). They include insects, crustaceans, arachnids, and myriapods. Collectively, arthropods constitute over 85 percent of the biological diversity in late-successional and old-growth forests in the Pacific Northwest.

Arthropods are treated as functional groups (i.e. guilds) with many taxa represented in each group, instead of as individual species. It was a conclusion of the Northwest Forest Plan Final SEIS that there was a concern for persistence for four arthropods guilds (litter and soil dwelling species,

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coarse wood chewers, understory and forest gap herbivores, and canopy herbivores) located in the Oregon and California Klamath, California Cascade, and California Coast Range Physiographic Provinces, primarily because of concerns associated with natural and prescribed fire and thinnings. There is no new information gathered since approval of the Northwest Forest Plan that alters the basic assumptions or conclusions that expressed a concern that the ecological functions of these four arthropods guilds may not persist in the south range. Survey efforts are currently underway to acquire additional information on community composition, abundance, and distribution, and to determine necessary levels of protection for the arthropod guilds. Anticipated effects outcomes for these guilds are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Mollusks

Mollusks are invertebrate animals (such as slugs, snails, clams, or squids) that have a soft unsegmented body usually enclosed in a calcareous shell. Mollusk species that inhabit Northwest forests include land snails, slugs, aquatic snails, and clams. As a group, mollusks are diverse in number and function. Many mollusks have restricted geographic ranges and narrow ecological requirements.

Two mollusks, *Prophysaon coeruleum* and *P. dubium*, would be removed from the Survey and Manage Standards and Guidelines under all action alternatives; one, *P coeruleum*, would be removed only in part of its range. The action alternatives would provide sufficient habitat to allow P. dubium to stabilize in a pattern different from its reference distribution while the No-Action Alternative would provide sufficient habitat to allow *P. dubium* to stabilize in a pattern similar to its reference distribution. The action alternatives would remove *P. coeruleum* in Oregon from Survey and Manage. If *P. coeruleum* is a single species, all alternatives would provide sufficient habitat for the species to stabilize in a pattern different from its reference distribution. However, if *P. coeruleum* is a species complex, there is insufficient information regarding this species to determine how any action alternative would affect distribution and stability while the No-Action Alternative would provide sufficient habitat to allow the species to stabilize in a pattern different from its reference distribution.

There are 46 species of mollusks that would remain under the Survey and Manage Standards and Guidelines under the action alternatives.

Compared to the No-Action Alternative, species receive different management under the action alternatives as a result of the application of new information and the slightly different emphasis of the alternatives. Under Alternatives 1, 2, and 3, strategic surveys are added for 46 mollusk species. Alternative 1 would remove pre-disturbance surveys for nine mollusk species and would remove two mollusk species from known site management. Alternative 2 would remove pre-disturbance surveys from 11 mollusk species and known site management from four species. Alternative 3 would add pre-disturbance surveys for three mollusk species.

Under all alternatives, 36 mollusks would be expected to have an outcome of stable populations. For the remaining mollusk species, there would be some risk to stable populations. This risk varies by alternative. Alternative 3 would provide the best opportunity for stable populations because no mollusks are considered at risk to stability primarily because of the requirement for equivalent-effort, pre-disturbance surveys.

Alternative 1 would not provide a reasonable level of assurance for stability of 10 species. Eight rare species are at risk to stability because of the lack of pre-disturbance surveys. Two species are considered at risk to stability because management of known sites and pre-disturbancesurveys would not be conducted for these uncommon species. Alternative 2 would not provide a reasonable level of assurance for stability for eight species because of the lack of pre-disturbance surveys. The No-Action Alternative would not provide for a reasonable level of assurance of

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stability for three Protect from Grazing species because of the lack of pre-disturbance surveys and strategic surveys. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Amphibians

Amphibians are cold-blooded vertebrates, including frogs, toads, salamanders, and newts, that have four limbs and glandular skin and are tied to moist or aquatic habitats for all, or at least part, of their life cycle. Five salamanders (Del Norte, Larch Mountain, Shasta, Siskiyou Mountains, and Van Dyke's) are included in the Survey and Manage Standards and Guidelines under all alternatives. No salamanders are proposed to be removed from the Survey and Manage Standards and Guidelines under any alternative.

Compared to the No-Action Alternative, species would receive different management under the action alternatives as a result of applying new information and because of the slightly different emphasis of the alternatives. Under Alternatives 1, 2, and 3, strategic surveys would be added for all five salamander species. Alternatives 1 and 3 would remove pre-disturbance surveys for the Del Norte salamander. Alternative 2 would remove pre-disturbance surveys for the Del Norte and Siskiyou Mountains salamanders.

The No-Action Alternative generally provides less protection than the action alternatives for Shasta, Van Dyke's, Larch Mountain, and Siskiyou Mountains salamanders (except for Alternative 2) and roughly equal protection to Del Norte salamanders (except for Alternative 2). For Van Dyke's, Larch Mountain, and Siskiyou Mountains salamanders, the No-Action Alternative provides sufficient habitat (including known sites) to allow the species to stabilize in a pattern similar to their reference distributions. For Shasta and Del Norte salamanders, the No-Action Alternative would provide habitat (including known sites) sufficient to allow species to stabilize in a pattern different from their reference distributions.

Under Alternatives 1 and 3, all five salamanders are projected to have sufficient habitat (including known sites) to stabilize in a pattern similar to their reference distributions with varying levels of uncertainty.

Under Alternative 2, the Shasta, Larch Mountain, and Van Dyke's salamanders are expected to have sufficient habitat (including known sites) to stabilize in a pattern similar to their reference distribution. For both the Siskiyou Mountains and Del Norte salamanders, while there is a high level of uncertainty due to our inability to project future management, this alternative would provide habitat (including known sites) sufficient to allow species to stabilize in a pattern different from their reference distributions. Anticipated effects outcomes for these species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Late-Successional Birds

The Northwest Forest Plan Final SEIS addressed the habitat needs of 36 bird species which were identified as closely associated with late-successional and old-growth forests. None of the alternatives in this SEIS would affect the original basis for effects or conclusions relating to 31 of these 36 species. It is expected that these 31 species of late-successional birds would have stable, well-distributed populations. This same conclusion applies to the remaining five species, but they are discussed in greater detail below.

Black-backed Woodpecker, White-headed Woodpecker, Pygmy Nuthatch, and Flammulated Owl

The action alternatives would move these four species from the Protection Buffer Standards and Guidelines, which applied only in the Matrix land allocation, to standards and guidelines common to all land allocations. This would broaden the area where specific management attention would

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be given to these species. The effect in reserve land allocations would be minimal, since management of these land allocations would presumably maintain high levels of snags over time, at or near 100 percent population potential for most snag dependent species. The action alternatives also include three changes to the management requirements for these species. The effect on Matrix and Adaptive Management Area land allocations would be similar to existing management direction because this standard and guideline already applies to those lands.

The action alternatives are expected to provide better habitat conditions for these species than the No-Action Alternative, due to their ability to incorporate updated information into Management Recommendations and provide for more effective retention of critical habitat components, including snags. An additional benefit to these species would be the ability to anticipate snag needs for these species when modeling and designing restoration activities (such as thinning to accelerate tree growth) in reserve allocations. All alternatives would provide sufficient habitat to allow these species to stabilize in a pattern similar to their reference distributions within the planning area.

Great Gray Owl

The action alternatives propose to move this species from the Protection Buffer to the Survey and Manage Standards and Guidelines. This change is expected to have no difference in how the habitat for this species is identified or delineated.

In the No-Action Alternative, occupied sites would become a Late-Successional Reserve with associated standards and guidelines. In the action alternatives, the great gray owl would be a Survey and Manage species, and would continue to receive similar management when compared to the No-Action Alternative. The No-Action Alternative requires a Late-Successional Reserve Assessment, subject to review by the Regional Ecosystem Office, for each site. Under Alternatives 1, 2, and 3 sites would be managed under a Management Recommendation subjectto review by the Regional Ecosystem Office. The action alternatives provide more flexible management direction that facilitates incorporating new data and information, and potentially more effective management of known sites, than would the No-Action Alternative.

All alternatives, with varying levels of certainty, would provide sufficient habitat (including known sites) to allow the great gray owl to stabilize in a pattern similar to its reference distribution. The anticipated effects outcome for this species is displayed in Table 2-12 and summarized by taxa in Table 2-13.

Late-Successional Mammals

The Northwest Forest Plan Final SEIS addressed the habitat needs of 14 mammal species which were identified as closely associated with late-successional and old-growth forests. None of the alternatives in this SEIS would affect the original basis for effects or conclusions relating to 11 of these 14 species. It is expected that these 11 species of late-successional mammals would have stable, well-distributed populations. Bat species and red tree voles are discussed below. Canada lynx has been listed as threatened under the Endangered Species Act and is addressed in the Threatened and Endangered Species discussion.

Bats

The three action alternatives incorporate identical management direction for bats and would have identical effects. Under the action alternatives, management direction that requires species-specific identification of bats would be removed until survey methods that eliminate the potential adverse effects on bats are developed. This change from the No-Action Alternative potentially eliminates or greatly reduces adverse effects from surveys. Under the action alternatives, structures including caves, mines, abandoned wooden bridges, and old buildings would be

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managed to protect the sites if any bat species were located. All alternatives would provide sufficient habitat to allow bats to stabilize in a pattern similar to their reference distribution.

Red Tree Vole

The Oregon red tree vole is endemic to western Oregon and extreme northwestern California. Its distribution is limited to the moist coniferous forest west of the crest of the Cascade Mountains. The red tree vole depends on conifer tree (primarily Douglas-fir) canopies for nesting sites, foraging, dispersal routes, escape cover, and moisture. Red tree voles appear to be closely associated with late-successional forest habitat and may be sensitive to habitat disturbance. Red tree voles are an important prey species for the northern spotted owl. Specific habitat conditions are assessed in five subzones to account for land ownership patterns and specific habitat conditions within the species' range.

Four subzones are composed of the species typical habitat. Under the No-Action Alternative and Alternatives 1 and 3, the red tree vole is expected to have sufficient habitat (including known sites) to maintain stable populations distributed in a pattern similar to its reference distributionon federally managed lands within these zones, but with a high degree of uncertainty. While there is a moderate level of uncertainty due to lack of knowledge regarding dispersal, current population trends, and gene flow between populations, Alternative 2 would provide inadequate habitat to maintain stable populations of the species in these subzones. This outcome under Alternative 2 is due in part to land ownership patterns, but is also due to the lack of pre-disturbance surveys, the requirement to manage only those sites known as of September 30, 1999, the short time interval for completion of strategic surveys, and the removal of this species from Survey and Manage Standards and Guidelines after 5 years (and consideration for management under the Agencies' special status species programs).

In three of these four subzones, nonfederal lands are likely to have a significant effect on the species' ability to disperse between major blocks of late-successional forest on federally managed lands. Because of the cumulative effects of land ownership, the No-Action Alternative and Alternatives 1 and 3 will likely provide sufficient habitat to allow the species to stabilize, but in a pattern different from the reference distribution on federal and nonfederal lands combined. Land ownership patterns and management practices on nonfederal land within these subzones strongly influence the species' future distribution here.

In the fifth subzone, which includes an area of the species range not previously understood in the drier, patchier habitats of south-central Oregon and northern California, the effects of the alternatives are less certain. There is insufficient information regarding this species to determine how any alternative would affect distribution and stability within the Xeric Forest Distribution Zone, particularly the portion of the red tree vole's known and suspected range on the Klamath National Forest in northern California. For the No-Action Alternative and Alternatives 1 and 3, there is insufficient information to determine how these alternatives would affect distribution and stability. These factors also affect the outcome in this subzone for Alternative 2, but this alternative is not expected to provide sufficient habitat (including known sites) to provide for stability for reasons similar to those previously identified for this alternative in the other subzones. Anticipated effects outcomes for this species are displayed in Table 2-12 and summarized by taxa in Table 2-13.

Species Associated with Early-Successional Forests

The Northwest Forest Plan Final SEIS describes the broad ecological characteristics of early-successional forest associated species and general conclusions about the abundance and distribution of early-successional forest prior to the influences of timber harvest and other land management practices. Those descriptions provide the basis for conclusions regarding effects on early-successional species in the Northwest Forest Plan Final SEIS.

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All alternatives would provide adequate acreage and distribution of early-successional habitat, across the planning area, to sustain populations of species dependent on young forest habitat. Currently, there is a relatively large extent of early-successional habitat, the expectation that nonfederal lands will continue to be harvested, and the expectation that natural disturbances will continue. Harvest on nonfederal lands and natural disturbance processes, such as wildfire andwind events, are likely to create early-successional habitat. The relative amount of newly created habitat is likely to remain the same under all alternatives. Although local populations of early-successional forest associated species would vary in number and distribution over time, these generally mobile and productive species are adapted to colonizing new habitats as they become available.

Threatened and Endangered Species

Northern Spotted Owl

Northern spotted owl habitat under the Northwest Forest Plan depends on management of large reserves with provisions for owl dispersal among the reserves. None of the alternatives would have an effect on the basic land management strategies in the Northwest Forest Plan. After 6 years of implementing the Northwest Forest Plan, experience has shown fewer impacts to the spotted owl population in the Matrix and Adaptive Management Areas than was originally expected due to lower than expected levels of timber harvest and more acreage in Riparian Reserves.

The differences among the alternatives relate to the acreage of protected habitat for Survey and Manage species and the effects on red tree vole, an important prey species. The acreage of protected habitat for Survey and Manage species occurs as scattered, relatively small patches that have little contribution to the spotted owl population. Red tree voles do not represent a large portion of the diet of most spotted owls; any effect to spotted owls from reductions of red tree vole populations is likely to be low. None of the alternatives will affect the original basis for the Biological Assessment or the conclusions of the effects to spotted owls as presented in the Northwest Forest Plan Final SEIS.

Canada Lynx

The Canada lynx was listed as threatened under the Endangered Species Act on April 24, 2000. The No-Action Alternative would retain the Canada Lynx Protection Buffer Standard and Guideline in the Matrix and Adaptive Management Area land allocations.

On February 7, 2000, the Forest Service and the U.S. Fish and Wildlife Service entered into a conservation agreement. The Forest Service agreed to consider conservation measures in the Lynx Conservation Assessment and Strategy when designing and implementing activities that might affect Canada lynx. Under the action alternatives, the Canada Lynx Standard and Guideline would require the Agencies to follow the existing conservation agreement, and consider conservation measures in the Lynx Conservation Assessment and Strategy when designing and implementing actions that could affect Canada lynx or its habitat. Based upon criteria for identifying and mapping suitable habitat as recommended by the Lynx Science Team, no suitable Canada lynx habitat occurs on BLM administered lands in the planning area. This standard and guideline would apply to all land allocations.

Under all alternatives, the Canada lynx is anticipated to have stable populations in suitable habitat distributed in a pattern similar to its historic distribution in the planning area, due to requirements for consultation under the Endangered Species Act, and provisions included in the interagency conservation agreement and related documents.

Other Threatened and Endangered Species

The Northwest Forest Plan Final SEIS addressed all of the Endangered Species Act listed species

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in the planning area at the time it was prepared. Many species that occur with the Northwest Forest Plan area have been added to the Endangered Species Act list since 1994. As species were subsequently listed, Section 7 consultation was reinitiated as needed. The alternatives would have no effect on the conclusions in the Northwest Forest Plan Final SEIS, or in subsequent consultations, for listed species. The Agencies will continue to comply with the requirements of the Endangered Species Act and will continue to manage habitat for listed species.

Costs of Management

Costs have been estimated for implementing the Survey and Manage Standards and Guidelines. These costs are based on expenses incurred between 1994 and 1999. During that period, approximately $10.6 million has been spent on "regional" costs and $19.5 million on "field level" costs. Regional costs include developing Survey Protocols, Management Recommendations, and Field Guides, completing strategic surveys, and data management. Field level costs are primarily pre-disturbance surveys. Of the $19.5 million, about $11.0 million was spent in 1999.

Costs of implementing the alternatives on an annual basis was estimated for the short and long term (see below and Table 2-13). Field-level pre-disturbance survey costs account for the majority of expenses across all alternatives in both the short and long term. For the short term, pre-disturbance survey costs account for 95.3 percent of the total cost for the No-Action Alternative, 66.4 percent for Alternative 1, 60.2 percent for Alternative 2, and 82.8 percent for Alternative 3. Strategic surveys account for 3.5 percent, 27.3 percent, 32.2 percent, and 12.9 percent, respectively, in the short term. Reductions in long-term costs are anticipated due to completion of strategic surveys for some species and subsequent reductions in pre-disturbance survey costs.

Estimated Annual Costs

	Short-Term (1-5 Years)	Long-Term (6-10 Years)
No-Action Alternative	$117.5 million/year	$114.0 million/year
Alternative 1	$28.6 million/year	$16.8 million/year
Alternative 2	$18.7 million/year	$12.3 million/year
Alternative 3	$60.3 million/year	$48.2 million/year

Socioeconomic

Actual timber harvest, a primary driver of economic, community, and social effects, has lagged behind levels projected in the Northwest Forest Plan Final SEIS for a variety of reasons, including: (1) the time lag between sale and harvest; (2) appeals; (3) lawsuits; (4) listing of new species under the Endangered Species Act; (5) difficulties in implementing the Survey and Manage Standards and Guidelines as originally anticipated; and, (5) Rescission Act Sales. Factors other than declining federal timber harvest have also influenced the lumber and wood products industry in the region.

Under the No-Action Alternative, available timber harvest would support an estimated 4,630 jobs. Under Alternatives 1 and 2, timber harvests and timber-related employment would be greater than under the No-Action Alternative. Under Alternative 3, timber harvest and timber-related employment would be reduced below levels anticipated in the No-Action Alternative.

In addition to timber-related jobs, the Agencies hire a temporary and seasonal workforce that assists with conducting surveys (some surveys are also conducted through contracts). The length and season of employment for these jobs are highly variable, depending on the species and Survey Protocol, so survey-related jobs are expressed in terms of full-time equivalent positions (i.e., 40 hours per week, year-round employment).

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The number of jobs that would be supported through timber harvest and survey-related employment under the alternatives are shown below and in Table 2-13.

Estimated Timber and Survey-Related Jobs

	No-Action	Alternative 1	Alternative 2	Alternative 3
Timber-related jobs	4,630	6,900	7,040	4,130
Survey-related jobs	2,052	499	342	1,051

Timber Harvest

Each alternative would directly affect the level of timber harvested from forest lands administered by the Forest Service and the BLM within the planning area. The Probable Sale Quantity (PSQ) is based only on those lands considered suitable for production of programmed, sustainable timber yields (i.e., lands in the Matrix or Adaptive Management Area land allocations). The 1994 Northwest Forest Plan displayed an estimated average annual PSQ level of 958 million board feet (MMBF). Since 1994, the PSQ has been reduced to 811 MMBF because of changes resulting from completion or corrections to land and resource management plans.

Estimating the effects to PSQ of the various Survey and Manage alternatives is dependent on determining the number of acres of late-successional forest that will ultimately be managed as known sites for Survey and Manage species. Based on recent experience conducting pre-disturbance surveys, it is estimated that it will take 25 years to survey all of the late-successional forest in the Matrix and Adaptive Management Area land allocations. Predicting the eventualnumber of sites that may affect PSQ was done by projecting the current rate of detection for Survey and Manage species ahead 25 years. An estimate of the average site size per species, times the total number of projected sites, was used to estimate the overall effect on PSQ.

The table below displays the projected PSQ, the percent reduction from the currently declared PSQ of 811 MMBF, the amount of late-successional acres that are predicted to eventually be managed as known sites, and the percent of the total late-successional acres in the Matrix and Adaptive Management Area land allocations that those sites represent, for each alternative. These numbers are range-wide estimates of effects and this SEIS does not make the decision to harvest timber. Actual calculation and re-declaration of PSQ is done at the administrative unit level during plan revision or other plan updating process. Individual sale offerings are subject to additional NEPA analysis.

Alternative	No-Action	1	2	3
Projected annual PSQ in MMBF	510	760	775	455
% reduction from 811 declared	(37%)	(6%)	(4%)	(44%)
L/S acres projected to be species sites	483,000	81,000	61,000	570,000
% of total L/S	(42%)	(7%)	(5%)	(50%)

L/S = late-successional

Comparison Tables

Table 2-13 summarizes effects for costs, harvest levels, and employment across all alternatives. This table also summarizes the species effects outcomes by taxa and compares these outcomes across all alternatives for species proposed to remain under Survey and Manage in the action alternatives. Table 2-14 identifies species with outcomes that vary by alternative and includes a discussion of the reasons for these variances. Table 2-14 and the species information on

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Table 2-13 were derived from Table 2-12. Table 2-12 is located at the end of this chapter and displays the effects outcomes for all species currently managed under Survey and Manage and discussed in detail in Chapter 3&4.

The following narrative applies to all species currently under Survey and Manage and is summarized from Table 2-12. For most species (397 of 422 outcomes), there is no variation in outcomes by alternative, although there may be variations in the level of uncertainty associated with those outcomes. (Note: Some species have multiple outcomes because effects are displayed for multiple portions of their range.) For 118 species with no variation of outcomes across alternatives, the Survey and Manage Standards and Guidelines and/or other elements of the Northwest Forest Plan will provide habitat (including known sites) of sufficient quality, abundance, and distribution to allow these species to stabilize in a pattern similar to their reference distributions (Outcome 1). For 40 species with no variation across alternatives, the Survey and Manage Standards and Guidelines and/or other elements of the Northwest Forest Plan will provide habitat (including known sites) of sufficient quality, abundance, and distribution to allow species to stabilize in a pattern altered from their reference distributions, with some limitations on biological functions and species interactions (Outcome 2). Another sixspecies have either Outcomes 1 or 2 across all alternatives and are considered stable across all alternatives. For 184 species, across all alternatives, there is insufficient habitat (including known sites) to support stable populations of the species (Outcome 3). For another 55 species across all alternatives there is insufficient information about these species to determine how any alternative would affect distribution and stability (Outcome 4). For most species with Outcome 3 and some with Outcome 4, the species are naturally so rare that they are inherently at risk from some disturbance or other factor and no alternative would entirely remove that risk. Based on current information, it does not seem possible to design an alternative within the scope of this SEIS that could eliminate much or all risk to the stability of these species. Where rare species are closely associated with late-successional forest and Survey and Manage will help, they are proposed to remain under Survey and Manage. They receive equal or greater protection (where practicable) under the action alternatives as they do under the No-Action Alternative. Under the action alternatives, known sites are managed for these species, strategic surveys will be undertaken for them, and if pre-disturbance surveys are practical, they will be conducted prior to habitat-disturbing activities.

The following applies only to those species proposed to remain under Survey and Manage as summarized on Table 2-13. There is no variation in outcomes across alternatives for fungi, lichens, bryophytes, and arthropods. The variation in outcomes for the vertebrates is between Alternative 2 and the other alternatives, while the slight variation in outcomes for vascular plants is between the No-Action Alternative and Alternative 1. There are a number of variations in outcomes for the mollusk species across all alternatives. The vertebrate, mollusk, and vascular plant species with varied outcomes across alternatives are presented in greater detail in Table 2-14.

Table 2-14 summarizes some of the background information used in the Species Review Process (see Table F-2) to assign species to categories and identify concerns expressed by the effects writers in the environmental consequences sections (see Chapter 3&4). Where management actions in one alternative alleviates the concern for species' stability and distribution in another alternative, mitigation consistent with the Purpose and Need of this SEIS is possible. If the decision-makers determine that the preferred alternative does not meet the persistence objectives of the proposed action or otherwise does not provide an acceptable assurance of persistence for these species, incorporation of those additional provisions will be considered.

Species proposed to be removed from Survey and Manage under the action alternatives are shown in Tables 2-2 and 2-12 ("Off" species). There are 72 species that would be removed from Survey and Manage in all (63 species) or parts (9 species) of their ranges under the action alternatives. Included are 18 fungi, 35 lichens, 11 bryophytes, 2 mollusks, and 6 vascular plants. Twenty-two species are proposed for removal only because they do not meet the second basic criterion for inclusion under Survey and Manage which states "The species must be closely associated with late-successional or old-growth forest." These species are already on, or are currently being

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considered for, the Agencies' special status species programs. Known sites for these species (1 fungi, 14 lichens, 6 bryophytes, and 1 vascular plant) will be managed until their disposition is clarified under those programs. For the remaining 50 "Off" species, the reservesystem and other standards and guidelines of the Northwest Forest Plan appear to provide for a reasonable assurance of species persistence.

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Table 2-13. Summary of Effects

Species Effects - Number of species in each outcome, by taxa group and alternative

	Outcome 1[1]				Outcome 2				Outcome 3				Outcome 4				
Alternative	**NA**	**1**	**2**	**3**	**NA**	**1**	**2**	**3**	**NA**	**1**	**2**	**3**	**NA**	**1**	**2**	**3**	**Total for each Alt.**
Fungi	29	29	29	29	5	5	5	5	164	164	164	164	11	11	11	11	209
Lichens	15	15	15	15	6	6	6	6	12	12	12	12	20	20	20	20	53
Bryophytes	7	7	7	7	-	-	-	-	-	-	-	-	10	10	10	10	17
Vertebrates	11	11	4	11	-	-	3	-	-	-	5	-	1	1	-	1	12
Mollusks	10	9	9	15	33	27	29	31	3	10	8	-	-	-	-	-	46
Vascular Plants	9	11	11	11	3	1	1	1	-	-	-	-	-	-	-	-	12
Arthropods	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4
Totals	81	82	75	88	47	39	44	43	179	186	189	176	46	46	45	46	353[2]

Other Resource Effects by Alternative

Alternative	**No-Action**	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Comments**
Annual Costs:[3] Short-Term	$118 million[4]	$29 million	$19 million	$60 million	Pre-disturbance field survey costs are 60-96% of costs.
Long-Term	$114 million[4]	$17 million	$12 million	$48 million	
Projected Acres Managed as Known Sites	483,000 acres	81,000 acres	61,000 acres	570,000 acres	Projected for 25 years, Matrix and AMA only
Projected Harvest Level[5] (Current declared PSQ: 811)	510 MMBF	760 MMBF	775 MMBF	455 MMBF	MMBF = Million Board Feet, annually
Employment (Wood Products)	4,630	6,900	7,040	4,130	
Employment (Survey Related)	2,050	500	350	1,050	

[1]See narrative referencing this table, the Background section in Chapter 3&4, or Glossary for description of outcomes. Does not include species proposed for removal from Survey and Manage under the action alternatives.
[2]Number of outcomes exceeds 346 because a few species have different outcomes for different geographic areas.
[3]Fiscal year 1999 Survey and Manage budget was about $8 million, fiscal year 2000 is about $12 million.
[4]Includes $93 million for fungi pre-disturbance surveys that require a 5-year, multi-visit sampling protocol considered "impractical" in the other alternatives.
[5]The NFP FSEIS estimated 6 MMBF as the effect of Survey and Manage. The PSQ effects for the alternatives are based on projecting current estimated acres of known sites for 25 years, with eventual limits on 14 species. Actual PSQ will be affected by future adaptive management decisions and identification of high-priority sites in Management Recommendations. Does not include 10% "other wood."

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Table 2-14. Species With Outcomes That Vary By Alternative

TAXA GROUP *Species*	Outcomes by Alternative				
	No-A Alt.	Alt. 1	Alt. 2	Alt. 3	Comments (Information extracted from Table F-2 and Chapter 3&4 Effects Sections)
VERTEBRATES					
Del Norte salamander *Phethodon elongaatus*	1(M)	1(H)	2(H)	1(H)	**F-2**: Moderate/high number of recent Federal sites in Northwest Forest Plan area, 40 percent in reserves. Need to determine high-priority sites for management. Pre-disturbance survey not necessary. **Reasons for Concerns**: For Alt. 2, the concern is uncertain future management after 5 years, short length of time to collect necessary information to direct future management, and possible loss in connectivity due to not managing all known sites.
Siskiyou Mountains salamander *Plethodon stormi* (Oregon)	1(M)	1(M)	2(H)	1(M)	**F-2**: Moderate/high number of recent Federal sites in Northwest Forest Plan area. Limited range/habitat. Need to determine high-priority sites for management. Restricted habitat; not likely to find many new sites with pre-disturbance surveys. Pre-disturbance survey practical. **Reasons for Concerns**: For Alt. 2, the concern is uncertain future management after 5 years, short length of time to collect necessary information to direct future management, and possible loss in connectivity due to not managing all known sites. Additionally, in Oregon, vulnerability to site losses is exceptionally high due to the dominance of the Adaptive Management Area land allocation within this species' range on federally managed lands. In California, there is a possible loss of sites in the southeast portion of its range. Forty-seven percent of range is in Adaptive Manage Area or Matrix land allocation.
Red Tree Vole *Arborimus longicaudus*	1(H)	1(H)	3(M)	1(H)	**F-2**: Moderate number of recent Federal sites in the Northwest Forest Plan area, extensive recent surveys in some areas. Need to determine appropriate management for this species, including high-priority sites. Pre-disturbance survey practical. (114 confirmed active nests; remainder are possibly active, not confirmed.) **Reasons for Concerns**: Under Alt. 2, there is no requirement for pre-disturbance surveys, only known sites as of 9/30/99 would be managed, and strategic survey would be completed in 5 years. There could be inadvertent loss of sites during interim 5 years; potential for isolation of populations and loss of connectivity; limited, uneven distribution of surveys across species range; requires multi-generational data to determine demographics, population trends, and density status. In the xeric zone, there are outcomes 4's for the No-Action Alternatives and Alternatives 1 and 3 due to lack of information with outcome 2 in Alternative 2 for the same reasons as above. Considering cumulative effects (all land ownerships), the outcomes for the No-Action Alternative and Alternatives 1 and 3 change from outcome 1 to outcome 2.

Table 2-14. Species With Outcomes That Vary By Alternative

TAXA GROUP *Species*	Outcomes by Alternative				
	No-A Alt.	Alt. 1	Alt. 2	Alt. 3	Comments (Information extracted from Table F-2 and Chapter 3&4 Effects Sections)
MOLLUSKS					
Ancotrema voyanum	3(M)	3(M)	3(M)	1(M)	**F-2**: Low number of recent Federal sites in the Northwest Forest Plan area, but with little survey effort to date. Late-successional or old-growth forest association questionable. Riparian reserves may protect some habitat. **Reasons for Concerns**: Low number of known sites. No pre-disturbance or general regional (strategic) surveys in the No-Action Alt. Under Alternatives 1 and 2, there are no pre-disturbance surveys.
Deroceras hesperium	2(H)	3(H)	3(H)	2(H)	**F-2**: Very low number of recent Federal sites in Northwest Forest Plan area. Late-successional or old-growth forest association uncertain, deferring to FEMAT. Pre-disturbance survey not practical, look-alike species are common, species is poorly described and requires an expert to identify. **Reasons for Concerns**: Neither Alternative 1 or 2 requires pre-disturbance surveys.
Helminthoglypta hertleini	2(M)	3(M)	3(M)	1(M)	**F-2**: Very low number of recent Federal sites in Northwest Forest Plan area, most known sites on nonfederal lands. Pre-disturbance survey not practical, requires identification by a limited number of experts; morphological variation common at the edge of its range. **Reasons for Concerns**: Neither Alternative 1 or 2 requires pre-disturbance surveys.
Hemphillia pantherina	2(M)	3(H)	3(H)	2(M)	**F-2**: No recent Federal sites in Northwest Forest Plan area. Late-successional or old-growth forest association uncertain, deferring to FEMAT. Pre-disturbance survey not practical, no specimens available, described characteristics may not well represent the species as they are based on limited specimens, expert identification required. **Reasons for Concerns**: Neither Alternative 1 or 2 requires pre-disturbance surveys.
Megomphix hemphilli, South of south boundary of Lincoln, Benton, and Linn Counties, Oregon	2(M)	3(H)	2(M)	2(M)	**F-2**: Moderate number of recent Federal sites in Northwest Forest Plan area. Pre-disturbance survey practical. **Reasons for Concerns**: Under Alt. 1, not managing known sites, potential loss of connectivity, and no pre-disturbance surveys. Unknown if sufficient sites in reserve land allocations.
Monadenia chaceana	1(M)	3(H)	3(H)	1(M)	**F-2**: Low/moderate number of recent Federal sites in Northwest Forest Plan area. Pre-disturbance survey not practical; expert identification required and even experts may disagree. **Reasons for Concerns**: Neither Alternative 1 or 2 requires pre-disturbance surveys.

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Table 2-14. Species With Outcomes That Vary By Alternative

TAXA GROUP *Species*	Outcomes by Alternative				
	No-A Alt.	Alt. 1	Alt. 2	Alt. 3	Comments (Information extracted from Table F-2 and Chapter 3&4 Effects Sections)
MOLLUSKS (continued)					
Monadenia churchi	2(M)	3(H)	2(M)	2(M)	**F-2**: High number of recent Federal sites in Northwest Forest Plan area, though restricted to a limited range. May be common, uncertain concern for persistence. Pre-disturbance survey practical. **Reasons for Concerns**: Under Alt. 1, not managing known sites, potential loss of connectivity, and no pre-disturbance surveys. Unknown if sufficient sites in reserve land allocations.
Monadenia fidelis klamathica	3(M)	3(M)	3(M)	2(M)	**F-2**: Very low number of recent Federal sites in Northwest Forest Plan area, but with little survey effort to date. Pre-disturbance survey not practical, defining characteristics only relative in nature, juveniles cannot be identified to species, and many look-alikes; expert identification required. **Reasons for Concerns**: Under the No-Action Alternative and Alternatives 1 and 2, concern raised by limited range, few known sites, and loss of undiscovered sites because of no pre-disturbance surveys. Under the No-Action Alternative, there are no general regional (strategic) surveys.
Monadenia fidelis ochromphalus	3(M)	3(M)	3(M)	2(M)	**F-2**: Low/moderate number of recent Federal sites in Northwest Forest Plan area, but with little survey effort. Late-successional or old-growth forest association uncertain, deferring to FEMAT. Pre-disturbance survey not practical, defining characteristics only relative in nature, juveniles cannot be identified to species, and many look-alikes; expert identification required. **Reasons for Concerns**: Under the No-Action Alternative and Alternatives 1 and 2, concern raised by limited range, few known sites, and loss of undiscovered sites because of no pre-disturbance surveys. Under the No-Action Alternative, there are no general regional (strategic) surveys.
Pristoloma articum crateris	1(H)	3(M)	3(H)	1(L)	**F-2**: Low number of recent Federal sites in Northwest Forest Plan area. Pre-disturbance survey not practical, very small (2.75 mm), forest floor dweller; expert identification required. **Reasons for Concerns**: Neither Alternative 1 or 2 require pre-disturbance surveys.

Table 2-14. Species With Outcomes That Vary By Alternative					
TAXA GROUP ***Species***	**Outcomes by Alternative**				
	No-A Alt.	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Comments (Information extracted from Table F-2 and Chapter 3&4 Effects Sections)**
VASCULAR PLANTS					
Cypripedium fasciculatum (entire range)	2(M)	1(M)	1(M)	1(M	**F-2**: High number of recent Federal sites in Northwest Forest Plan area, but many sites with very small populations; still at risk. Expand to apply to all range within Northwest Forest Plan area. Need to determine high-priority sites for management. Pre-disturbance survey practical. **Reasons for Concerns**: Under the action alternatives, Survey and Manage Standards and Guidelines, including strategic surveys, are applied throughout the range of the species.
Cypripedium montanum (entire range)	2(M)	1(M)	1(M)	1(M)	**F-2**: Moderate/high number of recent Federal sites in Northwest Forest Plan area, but many sites with very low populations; still at risk. Expand to apply to all range within Northwest Forest Plan area. Need to determine high-priority sites for management. Pre-disturbance survey practical. **Reasons for Concerns**: Under the action alternatives, Survey and Manage Standards and Guidelines, including strategic surveys, are applied throughout the range of the species.
H = high level of uncertainty, M = moderate level of uncertainty, L = low level of uncertainty					

Potential Additions to the Survey and Manage Mitigation Measure

Survey and Manage and the other standards and guidelines proposed for amendment by the action alternatives in this SEIS are themselves mitigation measures included in the 1994 Northwest Forest Plan Record of Decision, designed to better maintain or provide for the distribution and stability of certain species and to decrease the likelihood of extirpation of these species from federally managed lands in the Northwest Forest Plan area. Like other elements of the Northwest Forest Plan, these measures help avoid, minimize, rectify, reduce, or eliminate potentially adverse environmental impacts of forest management activities. The action alternatives in this SEIS would better identify the management needed, clarify language, eliminate inconsistent and redundant direction, and establish a process that responds to new information regarding Survey and Manage species. The alternatives would not remove the Survey and Manage mitigation measure or change the underlying premise or any key elements of the Northwest Forest Plan. The alternatives would not result in any higher levels of forest management activities than was intended or predicted in the Northwest Forest Plan Final SEIS. However, the alternatives are designed to ensure that the Northwest Forest Plan continues to meet its original dual objectives, the need for forest habitat and the need for forest products. As such, a careful examination of effects and a determination of whether any additional mitigation measures are available and should be applied, is appropriate.

The alternatives vary in how well they would satisfy the persistence objectives of the proposed action. The species effects sections highlight the differences between the alternatives and also provide analysis for determining the extent to which alternatives are consistent with the persistence objectives. If it is determined that these objectives may not be adequately met, additional elements for possible incorporation into the Survey and Manage mitigation strategy should be considered. All action alternatives were designed to correct problems with implementation of the Survey and Manage and related standards and guidelines while continuing to meet the underlying needs identified in the Northwest Forest Plan Final SEIS.

Table 2-12 shows the distribution and stability outcomes projected by the species effects writers for each species by alternative. For a substantial number of species, outcomes do not change across alternatives and these outcomes indicate that there is still concern for persistence despite the mitigation measures provided in the alternatives. These are species that are so rare or isolated that no alternative consistent with the Purpose and Need would remove all persistence concerns. Despite the continued concern for persistence of these species, the Survey and Manage mitigation measure will continue to reduce risks of extirpation and enhance the likelihood that the species will remain well distributed. For many of these species, Appendix J2 of the Northwest Forest Plan Final SEIS identified Survey and Manage as being "...beneficial to the species, but it is still likely to fail a screen and no other alternative or mitigation would bring it to the point where it would pass the screen" (USDA, USDI 1994a, pp. J2-57 through J-75). Over one hundred of these species are known from 5 or fewer sites and many others are known from 6 to 10 sites. Thus, uncertainty based primarily on species rarity simply prevents the development of any additional practicable mitigation measures, within the scope of the Purpose and Need ofthis action, that could reasonably be expected to provide for a greater assurance of persistence with any meaningful degree of certainty. For such species, one of the best things the Agencies could do is to increase the knowledge about them which is an objective of the strategic survey portion of the proposed action.

For some other species, the effects under alternatives other than the preferred alternative are anticipated to result in more stable populations, suggesting there are provisions of other alternatives that better meet species persistence objectives. If the decision-makers determine that the preferred alternative does not meet the persistence objectives of the proposed action or otherwise does not provide an acceptable assurance of persistence for these species, incorporation of those additional provisions will be considered. For example, certain mollusks with unstable populations under Alternative 1 would apparently benefit from the addition of equivalent-effort surveys as called for in Alternative 3. Such a measure would not be without its downside, however. A key element of Alternative 1 is the division of species between those for which pre-disturbance surveys are practical versus those for which strategic surveys are considered an efficient and more effective way to gain information about species' site locations.

Application of additional measures to the action alternatives in order to provide additional mitigation must be considered in the context of the Purpose and Need of the Proposed Action. A key element of that Purpose and Need is to maintain the balance achieved in the Northwest Forest Plan between resource outputs and habitat protection within the framework of the Agencies' myriad legal duties and certain additional measures could serve to upset or severely undermine that balance.

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